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THE KOCH TEST FOR TUBERCULOSIS.

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ON June 9th, a cow of the Station herd, which had been ailing for some time, was examined by Dr. I. M. Bush, of Bellefonte, who pronounced her to be suffering from tuberculosis. A *post mortem* examination fully confirmed this diagnosis, one lung containing a number of large, cheesy tubercles and abscesses. No remedy is known for the disease, and it can, in all probability, be communicated to man, both through the use of the meat and the milk of diseased animals, giving rise to that dreaded disease, consumption. The only hope of freeing a herd from it and rendering the use of the products safe, is the prompt destruction of all infected animals. The diseased animal in this case having stood in the barn with the remainder of the herd, it was feared that she might have communicated the disease to the other animals. All sales of milk and butter from the herd were therefore suspended, and measures taken to ascertain how far the disease had spread.

The detection of tuberculosis in its early stages by the ordinary methods is very difficult, and, indeed, in many cases practically impossible; while by the time the disease has progressed far enough to be readily detected, there is danger

that the animal has already conveyed it to others. It was, therefore, decided to make use of the so-called "Koch test" as a means of detecting the disease. This test, as described more fully by Dr. Pearson, consists in injecting under the skin a small quantity of a liquid known as "tuberculin" or the "Koch lymph," from its discoverer, Dr. Robert Koch, of Berlin. This substance, which was first proposed as a remedy for tuberculosis, though it has proved a failure for this purpose, is a very valuable means of detecting the disease. Its injection into a tuberculous animal is followed by a decided rise of the body temperature, while in animals free from the disease no such effect is produced. Its special value lies in the fact that the rise of temperature takes place, even in the very early stages of the disease, and when the tubercles are located elsewhere than on the lungs.

The test of the Station herd was made by Dr. Leonard Pearson, of the University of Pennsylvania, at two different dates, sufficient tuberculin not being available at the first examination to test the whole herd. The first examination was made on June 18 and 19. Upon this Dr. Pearson reports as follows:

"The temperature of each animal was measured at 5 o'clock in the evening and the injections were made about an hour later. The quantity of tuberculin used for each animal was ·25 c.c., which is sufficient to produce an elevation of temperature in tubercular cows. The temperatures were measured through the night until 6 a. m., at intervals of three hours. But two cows—Gertrude and Carmina—gave the characteristic reaction, and these are the only ones in which the presence of the disease was strongly indicated by tuberculin.

"Two other cows in the same row—Buttercup and Mignonette—showed very slight elevations of temperature, and some symptoms resembling tuberculosis, but not decided enough to justify one in diagnosing the disease. The other animals tested show no evidence of tuberculosis and in my judgment are healthy."

The following table shows in detail the observations made on each of the twenty-nine animals. The injections and the subsequent observations of temperature were all made in the same order, and the time given in the table shows approximately the hour for the first animal on the list.

Temperature of Animals before and after Injection of Tuberculin—June 18-19, 1892.

NAME OF ANIMAL.	5 p.m. (before injection.	9 p.m.	12 m.	4 a.m.	6 a.m.
Prima Donna	102	102	102·3	101·5	101·6
Janet	102·2	102·5	102·8	102·0	102·2
Christina	101	101·2	101·5	100·75	101·6
———	—	101·8	102·4	101	101·4
Daisy	102·8	103.2	102·5	102·0	102·4
Dahlia	101	102·6	102·2	101·8	101·9
———	—	103	101·8	101·8	101·2
Farmington Girl	101·6	102	102·2	101·6	101
Frances	102·6	102·8	102·8	102·4	102
Belle of the Forest	103·4	103	103·6	102·0	101·2
Cena	102	103	102·8	102·2	101·4
Floret M.	102·2	103·4	103	102·5	102·0
Heliotrope	102	102·2	102·8	102·2	102·0
Floret 6th	102	102·8	102·6	101·6	101·4
Ramona	102	102·6	102	101·0	101·0
Lillian	103	102	102·9	102	101·5
Primrose	100·8	101·6	102·9	101·4	101·6
Geneva	102	102·2	102	101·4	101·2
Gertrude	101·8	102·2	102·6	**105·5**	**106**
Cowslip	102	102	101·2	101·4	101·4
Buttercup	101·8	102·2	102·8	102	102
Carmina	102	101·6	103·4	**107·4**	**106·5**
Mignonette	103	104·2	104·4	104	103·2
———	—	102	101·6	101·5	101·7
Lavender	101·2	102·2	102	101·2	101·6
Mayflower	102·5	102	101·8	102	102
Sowers	102·4	103·2	102·6	102·2	102·2
Heifer, No. 19	102	101·8	101·6	101·4	101·4
Heifer	101·2	102·6	101·5	101·4	101·6
Heifer	102	102·4	102·2	101·6	101·5
Heifer, No. 35	101·8	102·6	102·2	102	101·9
Faucette's Wonder (bull)	101·8	102	100·8	101·0	100·6

The second test, including the remainder of the herd and also the four animals which showed a reaction on the first test, was made July 22 and 23 in substantially the same manner. As appears from the table below, none of the other animals showed any indications of tuberculosis by this test, and the two which were suspected on the first test—Mignonette and Buttercup—showed no reaction on the second test.

Temperature of Animals before and after Injection of Tuberculin—July 22-23, 1892.

Name of Animal	7 p.m. (before injection.)	12 m.	3 a.m.	6 a.m.
Osmond	101·8	102	100	100·5
Daffodil	102	102·2	102	101·5
Silvia	102·1	102	102	101·7
Dinah	101·3	101·1	101	101·2
Josephine	102·6	102·4	102·3	102·3
Veronica	102·8	103·8	102.8	102·2
Cowslip	102·5	101·6	101	100·0
Marigold	103	101·6	102·4	103·0
Lavender	103	102	102	102·1
Dulce	102·0	101·6	101·6	101·4
Sowers	102·0	101·4	100·0	100·2
No name	103	102·5	102·6	101·5
No name	102	101·8	103·3	102·2
No name	101·9	101·9	101·1	101·2
No name	102·9	102·0	101·8	101·2
Bianca	102·4	102·6	102·7	101·5
Margueritte	101·5	101·9	101·5	102·2
Calves	103·4	103·2	103·2	103·2
	104·7	104·2	103·8	103·3
	103·4	103·2	102·2	102
	103·0	102	103·2	102·8
	103·1	103	103·8	103·8
	103·9	103·6	103·5	103·8
	104·1	103·8	103·2	102·8
	103·6	103·8	102·9	102·7
	103·5	103·2	103·6	103·8
	103	102	101·4	103·8
	104	103·2	103·4	102·6
	104·7	103·4	101·6	102·7
Mignonette	102·9	101·5	100·5	99·8
Buttercup	101·9	101·9	102	102·6
Gertrude	102·2	101·8	**102·4**	**103·4**
Carmina	102·8	101·6	**103**	**103·6**

At this point the Hon. Thomas J. Edge, Secretary of the State Board of Agriculture, suggested that the opportunity be utilized to make a comparison between this new method for the detection of the disease and the older and more common method by physical examination, and offered for this purpose the services of the veterinarian of the board, Dr. F. Bridge, of Philadelphia. In view of the interest attaching to the subject, this offer was gladly embraced, and Dr. Bridge

accordingly came to the Station on July 29, and, without previous knowledge of which animals were indicated by the Koch test as tuberculous, made a careful physical examination of the herd. Two cows—Lavender and Carmina—were pronounced tuberculous, and two others—Cowslip and Rosella—as very probably so, and it was recommended that all four be slaughtered. All the other animals of the herd were pronounced free from tuberculosis.

The following comparison shows the results of the two methods of examination:

Name of Cow.	*Koch Test.*	*Physical Examination.*
Carmina	Tuberculous	Tuberculous.
Gertrude	Tuberculous	Not tuberculous.
Lavender	Not tuberculous	Tuberculous.
Cowslip	Not tuberculous	Probably tuberculous.
Rosella	Not tuberculous	Probably tuberculous.

It will be seen that the two methods agreed in only one case out of the five.

All five animals were slaughtered on the afternoon of the same day, the *post mortem* examinations being conductedby Drs. Bridge and Pearson with the following results:

"*Carmina.*"—Bronchial glands of left side as large as walnuts; cheesy and calcarous. On middle lobe of the right lung a tubercular abscess the size of a walnut, and several tubercules the size of small peas were found; a well-developed case of tuberculosis.

"*Gertrude.*"—Bronchial glands of right lung as large as hickory nuts and containing cheesy deposits. Tubercular mass the size of a hickory nut found in upper end of posterior portion of right lung; hepatized area 3 × 2 inches on top of posterior lobe of right lung, containing cheesy abscesses or tubercules from the size of a pea to the size of hickory nuts. Numerous tubercules the size of a pea, surrounded by thick, fibrous capsules, cheesy at the centre and surrounded by red zones, found scattered through the omentum; a well-developed and clear case of tuberculosis.

"*Lavender.*"—Has severe bronchitis of right lung; also pleurisy; great thickening of the pleura; fibrous masses attached to the costal pleura; no tuberculosis.

"*Cowslip.*"—Severe acute bronchitis in anterior lobe of right lung; no tuberculosis.

"*Rosella.*"—Bronchitis and pneumonia; no tuberculosis.

In brief it was found:

1. That both animals which gave a temperature reaction with the Koch test were tuberculous.

2. That no one of the animals slaughtered which failed to give such a reaction was tuberculous.

3. That all the non-tuberculous animals slaughtered had some lung lesion which deceived an experienced and skilful veterinarian into the belief that they were tuberculous.

The results of the test are strongly confirmatory of the value of the Koch test as a means of diagnosis.

CASE OF MONSTROSITY IN A CALF.

BY E. WALLIS HOARE, F.R.C.V.S., CORK.

ON the 25th of November I was called to attend a small Kerry cow, said to have been in labour since the night before. I found the animal showing hardly any signs of labour pains; the "waterbag" had not yet ruptured. On examination I found two fore legs and a head in the vagina, the head turned a little to one side. The passage was extremely narrow, and I was informed that this was her first calf. On applying traction I found that it was impossible to move the fœtus in any direction, and in further examination I discovered another leg, also a fore one, and another head pressing firmly on the pubic bone. Thinking the case to be one of twins, various means were adopted, but without avail; the passage was so narrow that it was with difficulty any of the parts could be handled, and I could not see my way to perform embryotomy.

After two hours and a-half had been spent in fruitless endeavours, and the cow having been placed in various positions, I concluded that as the animal was becoming weak the most humane course would be to have her destroyed. This was accordingly done.

As the case occurred in a town stable, I had not an opportunity of making a *post-mortem inspection*, but asked the butcher to send me the calf, which he did.

The case proved to be a remarkable monstrosity. On a superficial examination, there appeared to be two distinct bodies, each with its own head, and both fore and hind legs, and two tails. The bodies were united both in thorax and abdomen, and placed as if embracing each other. One was much larger than the other, but the heads, limbs, etc., were fully developed.

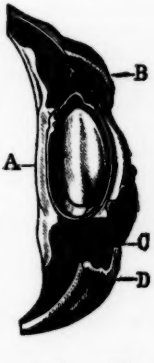
There were two sternums, where the ribs of one body joined those of the other. On an examination of the internal organs, each body was found to have a separate and distinct

digestive system. There was one diaphragm, and a single heart of large size placed on the sternum, in the median line between the two bodies. The liver was also single and of large size; it was placed likewise in the median line. There were two spleens, and two umbilical cords. The genito-urinary system was also perfect and distinct in both bodies, as was the nervous system. The respiratory system consisted of two lungs—one very large, the other small—each with its own bronchi and trachea. Each body had its own generative apparatus, which was perfectly developed, and of the male sex. The monstrosity was of enormous size, especially so when compared with the size of the mother. I think this case is rather remarkable when we come to consider that some of the vital systems were separate and distinct, while others were single. I regret to say that the carcase was not sent to me in time to make a careful examination of the circulation, as it was in the commencement of decomposition.

CATARACT FROM OPACITY OF THE HYALOID MEMBRANE OF THE VITREOUS HUMOUR.

BY VETERINARY-CAPTAIN J. A. NUNN, D.S.O., F.R.C.V.S., PROFESSOR AT THE LAHORE VETERINARY COLLEGE, INDIA.

THE specimen of this condition I am about to describe was obtained from an aged American mule that died in the Commissariat yard at Maritzburg, South Africa, while I was there. This animal was known to have had a cataract for some years; and on dissection of the affected eye I found the lens and its capsule to be in a normal condition, but the hyaloid membrane behind them was thickened and opaque, so that it must have entirely obstructed vision in that eye.



I could obtain no history of the case, but was informed that during life the change in the eye was to all appearance due to ordinary diffused lenticular cataract. The annexed sketch, taken from a section through the anterior portion of the eye, after hardening in alcohol, will perhaps explain the lesion.

The thickened hyaloid membrane is shown at A. The cornea has been removed, its cut border showing at B and C, and a portion of the sclerotica at D.

I cannot find any mention of a similar case in any works I have to hand, and I therefore send this description of it on the assumption that such a lesion is somewhat unusual.

THE CASTRATION OF THE DOMESTIC ANIMALS.*

BY PROFESSOR DEWAR, F.R.C.V.S., ROYAL (DICK'S) VETERINARY COLLEGE, EDINBURGH.

(Continued from Vol. XXXV., Page 415.)

In the case we have recorded, notwithstanding that the owner thought the colt had injured himself struggling while being castrated, we think that he must have caught infection in the box in which he stood while suffering from "cold," and which had not got any special cleaning. We do not absolve ourselves from blame in the matter, as it was our duty to observe and point out the risk; but we also think that had the case been energetically treated from the first it might have resulted in a recovery instead of a death, and had the colt got a sufficient amount of active exercise the suppuration might never have extended up the inguinal canal. After operating for so many years without any accident or death, one is apt to acquire a feeling of security and self-confidence which may be a false one. He may think, when so many hundreds have done well, Why should there be any risk with this one? We have an old Scotch saying which illustrates the position admirably:—"The pig aye gangs to a well till a'e day." So we ought always to remember that there is considerable risk, and do our best to diminish that risk. Those abscesses that form away up in the direction of the psoas muscles and point down the inside of the thigh are more difficult to account for. They ought to be treated with warm fomentations, and opened as soon as fluctuation can be determined. The castration of cryptorchids deserves an article to itself, instead of being tacked on to the end of a paper already much too long, so we must endeavour to treat it as briefly as possible. Rigs or cryptorchids are animals in which one or both of the testicles are not only not to be found in the scrotum, but are contained within the abdomen. Animals in which the testicles are irregularly situated in the inguinal canal or somewhere outside the abdominal cavity, although not contained in the scrutum, we do not consider true rigs.

When castrating yearlings we often meet with colts in which only one testicle can be felt. It is our invariable rule

* Read at the Meeting of the National Veterinary Association, at Glasgow, on August 3rd.

to leave these colts untouched, and, if early in the season, we return and re-examine them before the middle of June. If the missing testicle can then be felt both are removed, if not, the colt is left until the late autumn or early winter, when it is cast and castrated. If only one testicle is got, we think there is much more likelihood of the missing one descending into the scrotum when its fellow is removed. All the nervous force and energy of the generative faculties are now directed to the missing testicle, which has much more chance to develop and grow. And even if it do not descend into the scrotum it must grow faster, and is much more easily found in the abdominal cavity than when small and undeveloped. If the testicle is found to have descended by the following spring, when the colt is two years old, it is easily managed. And if it is not yet to be found, and the colt giving no trouble amongst other horses, we leave him until such time as he gives convincing evidence of his being possessed of the sexual propensities. But if he is already troublesome we at once proceed to operate on our rig. We don't think that over ten per cent. of the colts rising one year old, in which one testicle cannot be found, will ultimately be found to be rigs. Many are the colts we have operated on reported to be rigs, but in which we found the missing testicle without entering the abdominal cavity. Before operating it is advisable to put the colt on soft food for a day, and give very little of it, so as to have the bowels as empty as possible; and we have found it to be good practice to give an enema of warm water to empty the rectum before throwing the animal. The method we have found best adapted for securing the colt is that described by Mr. Donald, of Wigton, in the December number of the *Journal of Comparative Pathology and Therapeutics* for 1888.

As we have the notes of our first case of rig castration by us, and have not materially altered in our method, we will give them here as condensed as possible. "April 16th, 1888. Black two-year-old rig colt. Washed out prepuce and penis. . . . . Took a hold of anterior part of prepuce with left hand and made an incision five or six inches long from before backwards with an ordinary castrating knife, a little farther forward than usual and about an inch to the left (as the colt lay on his back) of the median raphe. Another cut took us through the dartos; then with a large, blunt, seton needle separated the tissues straight in the direction of the internal inguinal ring. Used our fingers very little, except to feel two or three times how we were progressing. Soon reached the

ring, cleared the tissues, and at upper and outer part sent the needle through with a distinct crack. Put through two fingers and felt for the testicle, but could not feel it until we felt for the vas deferens; got it at once, and managed to pull it through the opening with the two fingers, so as to get a hold of it with the finger and thumb. Then caught it with a dressing forceps, and got a better, shorter hold with the fingers. Found the opening small enough for the testicle, and the colt struggled when it was compressed in the opening, but managed to pull it slowly through without enlarging the wound in the peritoneum. Found no adhesions. Put on ecraseur as high up as possible, screwed it slowly up and removed it. Used mercuric chloride solution one-fifth per cent., and put carbolic oil, five per cent., into the wound immediately before letting him up. Was not down over twenty minutes. Testicle weighed for ounces five drachms. Temperature on being put in stable at noon 100° F., pulse 38; at 7.30 p.m., temperature 102° F., pulse 42."

That was the highest temperature recorded, although the pulse rose to 50 the following morning—the highest it reached. His wound was dressed daily; he made a rapid recovery, and in ten days was practically healed.

In such cases as that described, when the wound in the peritoneum is made up against the side of the pelvis, and only two fingers are inserted through the opening, we do not think there is any necessity for putting sutures in the external wound; but when the opening in the peritoneum is larger, or the whole hand has to be inserted, it is our practice to insert a couple of deep silk sutures through the external wound, leaving them for two or three days. We are not at all afraid of a little blood escaping into the abdominal cavity. The peritoneum is a first-rate absorbing membrane, and if everything is aseptic, will soon make it all right.

In submitting this paper to the consideration of the National Veterinary Association, our chief regret is that we were not in a position to deal with this important subject in a more thorough and exhaustive manner. Coming upon us, as it did, at our busiest season, and having even less time than usual, owing to other circumstances into which we need not enter, we feel that we have not done justice to our subject, which has turned out a much larger one than we expected; so large, indeed, that in relation to some branches of it we felt compelled to frame our remarks more in the nature of a commentary than of an exhaustive monograph. But we hope it will to some extent direct attention to this important operation—

an operation which is still to many veterinary surgeons a matter of purely rule-of-thumb practice. We admit that this rule-of-thumb is often particularly successful, as witness the success which attends the practice of many professional gelders. But supposing that their methods are good, they have a great advantage over an ordinary veterinary surgeon in a large mixed practice. Practice makes them expert in the methods they adopt; for a certain season they do nothing else; and they run no risk in handling animals suffering from diseases from which infection might be communicated by the hands of the operator. But for all that, a veterinary surgeon should be able to look at the operation from a scientific point of view, and to give an intelligent reason for his method, as well as to determine the cause of any unfavourable results.

The main things to be observed are—to have the colts in as healthy and hardy a condition for the operation as possible; to operate under strict antiseptic precautions as a safe and simple, if sometimes unnecessary, method; to have them under good hygienic conditions; and to see that they are comfortably treated and have plenty of active exercise afterwards.

No operator will have good results if the colts are standing in dirty sheds, or over several weeks' accumulation of their own droppings. We never yet had a colt that did not swell after the operation if kept standing in a byre alongside cattle, or even in a stable with a large number of other horses.

Given a couple of healthy colts running together, with a clean, airy shed, not in the way of being occupied by animals to house them in at night, and we would almost guarantee that the wounds would be thoroughly healed without any swelling within eight days. And is this not what we are all striving for: safety during the operation and a rapid recovery? Once the wounds are healed there is no more risk of scirrhus cord, tetanus, or any of the other ills they are liable to. The worst feature of the operation by the clam is the length of time the wounds remain open, increasing the time the colts are exposed to risk from the operation. And the system under which the wounds will heal most rapidly, without increasing the risk to the animal in the first instance, is undoubtedly the best system of operating.

Editorial.

FOOT-AND-MOUTH DISEASE IN SOUTH AFRICA.

WE fear there can no longer be any doubt that Foot-and-mouth disease has invaded our South African colonies, and that unless energetic measures are adopted it will quickly become widespread. In the last issue of the JOURNAL we gave a report as to an apprehended invasion of this epizooty and cattle-plague; we have heard no more of the latter, but the *Cape of Good Hope Agricultural Journal* for November 17th, gives details as to the progress of the former, which leads us to conclude that the milder and less fatal, but yet very troublesome and damaging plague is present in that colony, and may be in Natal before long. Where it has come from there is no evidence yet to show, but it was probably imported by the Portuguese or Germans, whose territories adjoin those of England at certain points of what is called the British Protectorate. So long ago as September last there were rumours of the disease having appeared in the more remote parts of that territory, and the Government at once proceeded to make arrangements for preventing its entrance into the Cape Colony, should it be found to be spreading southwards, while the various Border Civil Commissioners were asked to estimate the number of police required to watch the several roads over which cattle traffic generally travelled. At the same time a memorandum on the symptoms and treatment of the disease was prepared by the Colonial Veterinary Surgeon, and was printed in English, Dutch and Kafir; this was widely distributed throughout the border districts where it was presumed the disease would probably first announce itself. The neighbouring States were communicated with, and the co-operation of their Governments in general precautionary measures solicited; but at that time there appeared to be no apprehension of the disease proving any more virulent than the ordinary "klauw en tong ziekte," the treatment of which is familiar enough in the colony. On the 10th October the disease was reported to exist in a mild form in the neighbourhood of Vryburg and Mafeking, and in view of the very considerable traffic between that portion of British Bechuanaland and the Cape Colony it was deemed advisable to issue, on the 13th idem, a proclamation prohibiting the introduction into the Colony of any cattle, sheep, goats and pigs, either suffering from the disease or coming from any

infected area in British Bechuaualand, the British Protectorate and the South African Republic, and all concerned were advised accordingly.

On the 17th October the disease was reported in a very bad form at Mochadis; it was also said to be at Ramoutsa, Kanya, and Khequane, and on the 28th it was reported to be near Warrenton, its exact locality being ascertained on the 31st to be the Mayeng native location, Ward Hebron, between the Vaal and Harts Rivers Divisions of Barkly West.

The infected span of oxen was destroyed, and the ground upon which they had been quarantined was, as far as possible, disinfected by sprinkling with Jeyes' fluid. Police were sent forward to guard the river banks, as it was hoped that the outbreak might be confined to the tongue of land between the two rivers. Contemporaneously with this outbreak came a report of the existence of the disease at Harrismith, in the Orange Free State, near the Natal border.

The character of the disease was confirmed by Veterinary-Surgeon Henning on the 5th November, after personal inspection of infected animals at Mayeng, and, at the same time, he reported that it was spreading rapidly. Under these circumstances it was decided to declare the whole of that portion of Barkly West, lying between the Vaal and Harts Rivers, to be an infected area; but on the same day several reports were made of its appearance in the Kimberley division, and it was deemed advisable promptly to quarantine the whole of Griqualand West, falling back on the Orange River as the quarantine line of defence. Proclamations effecting this decision appeared in a *Gazette Extraordinary* on the 9th November, and the introduction of cattle, goats, and pigs from any of the neighbouring States was entirely prohibited.

According to the latest intelligence, the necessary police are now stationed at all bridges, fords, and drifts where cattle might be likely to pass. All border Commissioners are instructed by wire, and the Civil Commissioner of Namaqualand is advised of the action taken up to date, with permission to use his own discretion in guarding his very extensive border, over which, however, it is probable that there is but little traffic. To insure the least possible interruption of wagon traffic, the Colonial Veterinary Surgeon, Mr. Hutcheon, is proceeding to the several bridges over the Orange River, where he is establishing a system of transhipment under simple but effective precautionary measures. Horses, mules and asses swimming or coming through drifts may cross the river unimpeded.

Disinfecting tanks are being constructed at the bridges where necessary, and horses, mules, and asses coming into the Colony other than those crossing the river by swimming or by the drifts, are thoroughly cleansed. Farmers on the river are warned that bucks of any kind may introduce the disease. Some fifty or more police are constantly engaged in watching the several fords and drifts, and every care is being taken to keep the disease from coming south of the Orange River. All magistrates on the Basutoland and Natal borders have instructions to give the earliest possible intimation of the approach of the disease, which, if it appeared in the Eastern Province during the lambing season, would prove most disastrous.

We earnestly hope that the progress of the scourge may be checked, and that it will be extirpated in a brief space; as in these agricultural colonies, with their immense herds and flocks grazing at large over almost boundless stretches of country, suppressive and curative measures are most difficult, if not impossible, to carry out thoroughly.

UMBILICAL PYÆMIA IN FOALS.

GMELIN, a veterinary surgeon at Offenhausen, Wurtemburg, has published a very interesting paper in the *Monatshefte für Praktische Thierheilkunde*, on pyæmia in foals due to septic inflammation of the umbilical cord. From statistics he proves that this serious condition has prevailed for more than a century in the *haras* at Marbach, the principal stud in Wurtemburg. From 1852 to 1863, there was an average number of 96 mares therein, and of the foals they produced 119 died of pyæmia; while from 1871 to 1880, 35 foals succumbed, of 262 born during that time; and from 1881 to 1889, of 286 foals 49 died, 18 of them from umbilical pyæmia, or 36·7 per cent. mortality.

By reason of the frequency of articular lesions, Nager and Weith long ago gave this condition the name of "joint disease." It was studied by Worz, and then by Hering, both of whom believed it to be a congenital affection due to insanitary influences, such as bad forage, cold stables, etc. Hering described cerebral, intestinal, cerebro-intestinal, and articular forms, according to the pyæmic localisations. It is not until Bollinger undertook its investigation that we began to have precise ideas as to the nature of the malady, as he established the fact that infection occurred through the umbilicus, and that his accident was favoured either by the persistency of the urachus or by tardy cicatrisation of the umbilical wound.

Gmelin gives thirteen cases which he observed, and which clearly demonstrate the mode of infection. All the early lesions were located in the vicinity of the umbilical ring, whence in the course of six or seven days they had extended to the entire region, as well as to the peritoneal cavity. The secondary lesions may develop in any or all of the organs—this generalisation taking place through the umbilical arteries, contrary to what occurs in the calf and lamb, in which infection generally occurs through the umbilical veins. The articular alterations are almost constant, and not unfrequently the occipito-atloid articulation is affected.

The synovia is abundant, turbid and purulent; the serous membrane is red and villous; the articular cartilage is dull in hue and roughened. There are often abscesses in the peri-articular tissues, in the bursa or tendons, and in the course of the lymphatics. In one instance there was metastatic ophthalmia with purulent infiltration of every part. In another there was a lepto-meningitis extending over the entire surface of the brain, with fibrinous and purulent deposits in the neighbourhood of the cerebellum and medulla oblongata. The lungs, spleen, and liver are frequently attacked, and there are observed in them metastatic abscesses surrounded by a zone of congestion.

Ordinarily the affection appears some days after birth—in one case it showed itself seventeen days after the foal was born. Of those affected 69 per cent. were males.

The prophylaxis of the disease consisted in preventing infection by the umbilicus, which was always to be apprehended when cases had occurred before, and the pathogenic germs were scattered about. Mares about to foal should be isolated in clean loose-boxes provided with peat litter or dry leaves as bedding. With regard to local treatment, Gmelin adopted the following procedure with the umbilicus:—Immediately after birth the cord was washed with a solution of corrosive sublimate, an antiseptic band was applied to it about three-fourths of an inch from the ring, and when the pulsations had ceased in the artery the cord was cut below the band. The region was then washed now and again with the solution of sublimate, and the ligature renewed if occlusion of the cord was not complete.

Dressings with solution of carbolic acid in the vicinity of the ring are not to be recommended, as they make the skin like parchment, cause the remains of the cord to become fissured, and so give rise to hæmorrhage. Gmelin found the part treated by his method covered in about seven days by fine healthy cicatricial tissue, and having applied the treatment in the Marbach stud since January, 1890, he has not had a case of umbilical pyæmia among the foals.

SPONTANEOUS AMPUTATION OF THE UTERUS IN A PREGNANT COW.

In the *Schweizer Archiv* for 1892 (p. 76), Professor Hess, of the Bern Veterinary School, describes this most unusual accident, which occurred in a three-year-old cow of the Simmenthal breed, which had been put to the bull in February, 1891. In August of that year the cow was sold as in calf, and the purchaser satisfied himself as to the presence of a fœtus in the left flank; but parturition not having taken place she was sold to the butcher on March 29th, 1892.

At the autopsy the uterus was found separated from the gravid cornu, which had fallen into the left flank and constituted a mass measuring 50 centimetres long by 27 wide, and weighed about 52 pounds. There was no fluid in the envelopes. The fœtus had two well-developed incisors, and the skin of the head and buttocks was covered with hair.

Amputation had not been effected by strangulation of the umbilical cord, many instances of which are recorded, but was probably produced by torsion of the uterus having caused compression, followed by section of the uterine parietes at the commencement of the gravid cornu.

THE TREATMENT OF WARTS.

Though warts are generally of little importance, yet on occasions when they interfere with movement or are liable to be rubbed and made raw, they may be a source of considerable trouble; at all times, also, they are unsightly. For some time now they have been considered by some observers as parasitic in

their character, the micro-organism being the *bacterium porri* of Majocchi. In the *Recueil de Méd. Vétérinaire* for last October, M. Boudeaud alludes to this origin of warts, and surveying the different measures devised for their extirpation he is of opinion that a parasiticide treatment, without causing bleeding, is indicated. With this object he has obtained constantly successful results after three or four applications of the following ointment:

Arsenious acid	10 parts
Powdered Savin and Powdered Gum Arabic	of each 10 parts
Simple Cerate	36 parts

This makes a very adhesive topical application when made semi-fluid by heat, and spread on the wart by means of a small brush. It answers particularly well for warts on the teats of cows.

Another topical application which has been very useful in removing warts from people, and should be also as effective for animals, is

Corrosive Sublimate	1 part
Castor-oil Collodion	30 parts

Boudeaud also speaks favourably of the internal administration of calcined magnesia for warts on dogs, which are in danger of being poisoned by the other agents through licking them off.

TREATMENT OF ULCERATION OF DOGS' EARS.

Nocard lays stress on the severe pruritis which an ulcer or sore in the dog's ear occasions, as an aggravating cause, from its compelling the animal to shake its head violently. He, therefore, considers that if the itching be subdued the treatment of the chancre becomes a secondary matter. To attain this object he recommends the application of a small portion—about the size of a hazel nut—of the following ointment:—

White Vaseline	100 parts
Salicylic acid	10 parts.

For house dogs a few drops of tincture of benzoin may be added. By means of this application the pruritis disappears, the head shakings are also stopped, and the sore in the ear soon heals.

CANADIAN CATTLE.

It was telegraphed from Ottawa, Canada, on December 15th, that the Dominion Government have proposed to the British Ministry that the latter shall send experts to Canada to investigate the cause of the alleged disease in cattle, the expense of the inquiry to be defrayed by Canada. No trace of contagious pleuro-pneumonia can be discovered in that country, and this is the step the Canadian Government now propose in order to prove that it does not exist.

EXTRAORDINARY PERIOD OF LATENCY IN HYDROPHOBIA.

No disease is so variable in its latency or quiescence as hydrophobia in man; for we cannot ascertain the period between accidental inoculation of the virus and the development of the disease in many cases of rabies in animals, in which an apparently long time has elapsed between the bite and the early symptoms, as they may have received subsequent inoculation without any person being aware of it.

In the *British Medical Journal* for December 17th, is the report of a case in which a young man succumbed to hydrophobia five years after he had been

wounded by a rabid dog. He and his brother, as well as a neighbour, all residents in Huddersfield, were bitten by the same animal in August, 1877, and the three had been protectively inoculated at the Pasteur Institute, Paris. In the following October 4th, the brother was admitted to the Huddersfield infirmary, suffering from hydrophobia, and died the next day. His age was then sixteen, that of the brother being 12 years. The latter was bitten on the left hand, and since the injury he had been perfectly well with the exception of lymphangitis of his left arm two years ago. On August 31st last, he complained of illness; on September 5th, he was admitted to Huddersfield infirmary, where he died on the 6th, the symptoms being unmistakably those of hydrophobia.

ALUMINIUM HORSE-SHOES.

THE *Ruskii Invalid*, quoted by the *Avenir Militaire* and the *Revue de Cavalerie*, describes some trials which have been made with horse-shoes of aluminium, in a regiment of Finnish dragoons. In order to compare their durability with shoes made of iron, as well as their solidity, a certain number of horses were shod with these aluminium shoes on one or more of the feet, and iron shoes on the other feet; one section of these horses performed only ordinary riding-school work, the other section doing field-days and marching on roads. When they came to be re-shod at the end of six weeks, it was found that the aluminium shoes had worn as well as, if not better than, the other shoes, and none of them had been broken, though the one section had travelled over hard, stony roads; neither had they become oxidised, or damaged the hoofs in any way.

These shoes are only about one-third the weight of iron shoes, but they are much more expensive; though this dearness is compensated for to a certain point by the fact that in making them very little fuel is needed, and the metal of the worn-out shoes is still valuable. Much practice is required, however, in fabricating the shoes, as the metal must be worked at a low temperature.

The presumed advantage of these aluminium horse-shoes consists in their lightness, which permits of a larger number of them being carried by troops. The metal will, no doubt, be more cheaply produced in the course of time, and then, if these tests continue to be satisfactory, it is possible that aluminium may supersede iron as a material for horse-shoes.

TUBERCULOSIS AND SWINE FEVER.

AT the National Agricultural Conference, held at St. James's Hall, London, on December 8th, Mr. Kay (Lancashire) moved the following resolution:—"That having regard to the fact that on July 10th, 1888, a departmental committee on tuberculosis reported as follows 'In order to insure the gradual extirpation of tuberculosis, we are of opinion that it should be included in the Contagious Diseases (Animals) Acts,' this conference is strongly of opinion that her Majesty's Government should forthwith give effect to such recommendation and thus, in the words of the aforesaid committee, 'minimise a disease so dangerous alike to animals and to mankind,' and this conference is further of opinion that swine fever should be similarly treated." He said that as to his county the veterinary surgeons, the county councils, and the central chambers were all agreed that swine fever should be put under the Contagious Diseases (Animals) Act. Tuberculosis was a very serious thing in Lancashire; but Parliamentary candidates said they could do nothing until the present Royal Commission had reported. Meanwhile the corporations and the medical officers were destroying cattle by the thousand in the month. It was an absolute fact

that one in every five cows was suffering from tuberculosis. Mr. Bell (Lancashire) said that they had given the foreigner too much already, and now farmers must do something for themselves. (Hear, hear). Sir Mark Stewart, M.P., said that he represented the largest dairy district in the kingdom, and he knew what ravages tuberculosis was making. The resolution was one of the most important which the conference had been asked to pass, and he hoped that the present Government would carry it into effect. The resolution was carried unanimously.

DIABETES MELLITUS IN THE DOG.

According to the *Berliner Thierarztliche Wochenschrift*, Fröhner has in the last ten years described five case of Diabetes Mellitus in the dog. In the last of the cases he publishes, the principal symptoms were wasting of the muscles and a pale-yellowish tint of the mucous membranes. The temperature was 39·2 Centigrade, and the pulse was from 120 to 140 and irregular. The urine was abundant and clear, and had an odour of chloroform; its specific gravity was 1055, and it contained 4·9 per cent. of grape sugar. The two eyes presented a greyish-yellow tinted radiating opacity of the crystalline lens-diabetic cataract. The animal did not eat, and died after two days of absolute coma.

A *post-mortem* examination discovered the liver to be very voluminous and of a pale colour, having undergone fatty degeneration; there was also parenchymatous catarrhal nephritis, indications of gastro-enteritis, and incompetency of the tricuspid and mitral valves.

An analysis of different organs yielded the following proportion of sugar: liver, ·10 per cent.; blood, ·06 per cent.; bile, ·023 per cent.; brain and spinal cord, ·02 per cent.; kidneys, ·013 per cent.; and muscle, ·0066 per cent.

Professor Schindelka, of the Vienna Veterinary School, also reports in the *Oesterreich. Zeitschrift für Veterinärkunde*, an instance of diabetes in a small dog. The animal was very emaciated, and it drank from two to three pints of water during the day. The temperature was normal; the thorax appeared to be enlarged posteriorly, and the liver on palpation appeared to be much increased in size. There was double diabetic disturbance of the crystalline lens, but the ophthalmoscope did not reveal any alteration at the back of the eye. At the autopsy the liver was found to be very voluminous and degenerated; the urine was clear but rich in sugar. Diabetes seems to be more common in dogs at Vienna than elsewhere, three cases having been reported in 1889.

AN EDINBURGH TOWN-COUNCILMAN.

We are certain the veterinary profession in this country will be pleased to earn that Principal and Professor Williams has been elected a member of the town council of Edinburgh. The honourable position has not been occupied by a member of the profession since the death of Professor Dick, and we feel sure that it will now be as well and worthily represented as it was by him. The new councilman has our best congratulations and good wishes on his accession to municipal dignity and office.

Reviews.

HORSES IN ACCIDENT AND DISEASE. By J. ROALFE COX, F.R.C.V.S. (Edinburgh: David Douglas, 1892.)

Mr. Cox is to be congratulated on the publication of the twenty-eight etchings, in which horses suffering from certain diseases and accidents are cleverly portrayed in their most characteristic attitudes. This is a somewhat new departure in veterinary literature, for though the artist's talent has been invoked in this direction for more than three hundred years, yet the illustrations have usually been made subordinate to the letter-press; whereas in this group of sketches the contrary is the case, the written description being extremely brief, and mainly explanatory of the drawings. These, for their accuracy, justness of proportion and artistic feeling, are far beyond the caricatures of animals to be found in Mayhew's or Armitage's books on the horse—indeed they are not to be compared with them. Each figure is unmistakeable in what it is intended to be, and the experienced veterinary surgeon can have no difficulty whatever in diagnosing the ailment of the animals without referring to the text. In some of the plates the physiognomy of the disease delineated is really very striking—tetanus for instance. This clever little work affords object lessons to veterinary students which may benefit them when they embark in practice, while to practitioners they will prove a source of pleasure and, maybe, instruction.

LIFE IN MOTION, OR MUSCLE AND NERVE. By JOHN GRAY MCKENDRICK, M.D., LL.D., F.R.S., ETC. (London and Edinburgh: Adam and Charles Black, 1892.)

In 1891-92 Professor McKendrick gave a course of six lectures to a juvenile auditory at the Royal Institution of Great Britain, on the subject of muscle and nerve, more particularly from a physiological point of view, and these lectures have now been published in a neat and handy volume of 200 pages, well illustrated with more than eighty woodcuts. Though the lectures were prepared for young people, yet they are so interesting, and written in such a pleasant manner, that they cannot fail to be acceptable to those of mature age, embracing as they do, though couched in popular language, everything necessary to be known with regard to the structure of muscle and nerve, and the wonderful phenomena of muscular contraction. Veterinary students who undergo a gentle but strict catechising by their examiner in physiology, will recognise his explicit and clear style of address, and will no doubt be pleased to possess a souvenir of one who is not only a most distinguished physiologist, but who takes a deep interest in their professional welfare. The dedication of the work touches a sympathetic chord that will vibrate tenderly in the hearts of those who recognise the great sorrow that it embodies, and with which the title of the work is directly associated.

LES MALADIES DU JEUNE CHEVAL (THE DISEASES OF THE YOUNG HORSE). By P. CHAMPETIER. (Paris: J. B. Baillière et Fils, 1892.)

This is an excellent little work of nearly 400 pages, written by the chief veterinary surgeon in the Twenty-fourth regiment of French Artillery, and dealing exclusively with the diseases of young horses. These diseases, as is well known, from their frequency, the mortality they occasion, and the consequent losses, are, therefore, those which veterinary surgeons and horse-breeders should thoroughly understand, with respect to their causes and treatment, and particularly their prevention. M. Champetier has penned his treatise in a thoroughly practical and scientific spirit, and the latest developments in the pathology of young horses are carefully included, no new facts, so far as we can discover, being omitted. Among the diseases described are

strangles, what the author calls scarlatinoid, horse-pox, infectious pneumonia, diarrhœiac-enteritis, the arthritis of foals, muguet or thrush, verminous affections and parasites. There are a number of coloured plates showing the microbes of several diseases, as well as figures of thermic charts giving the variations of temperature in the febrile maladies. Those who can read the work will find it most useful and informing, and it should certainly be in the hands of the army veterinary surgeon.

LIVE STOCK JOURNAL ALMANAC FOR 1893. (London: Vinton and Co., Lim.)

Once more this wonderful almanack appears, and, if possible, more varied and abundant, as well as excellent, in its information than in previous years, which is saying very much. Nothing but an immense sale could guarantee the production of such a large book at such a small price. It contains something for everybody who is concerned in the management and welfare of the domesticated animals, whether these be haired, bristled, furred, or feathered. Almost every phase of breeding, feeding, and managing them is dealt with, and there is besides a mass of information on other matters that will be found of advantage to pretty well everyone in the everyday affairs of farm, market, stable, pasture, and kennel business, not even excepting parrot keeping. Even to the veterinary surgeon such an almanack should prove an invaluable desk or library companion, and as such we strongly commend it to his notice.

Army Veterinary Department.

Gazette, December 22nd.

YEOMANRY CAVALRY, SHROPSHIRE. Veterinary-Lieutenant H. Barnes, to be Veterinary-Captain.

Veterinary-Major W. Walker has been granted a further extension of six months' leave. Veterinary-Captain E. H. Kelly has embarked to complete his tour of service in India. Veterinary-Lieutenant E. W. Larnder has been granted an extension of leave to January 31st. Veterinary-Lieutenant F. D. Hunt has embarked for a tour of service in India.

The following announcement, which appeared in *The Gazette* of November 29th, will be received with gratification by those members of the profession who have followed with deep interest the well-deserved advancing good fortune of their late colleague:—The Queen has been pleased to give and grant unto Captain John Robert Beech, C.M.G., D.S.O., 20th Hussars, Her Majesty's Royal licence and authority that he may accept and wear the Insignia of the Order of the Osmanieh of the Fourth Class, which his Highness the Khedive of Egypt, authorised by His Imperial Majesty the Sultan, has been pleased to confer upon him in recognition of his services whilst actually and entirely employed beyond Her Majesty's dominions in the service of the Egyptian Government.

In *The Gazette* of December 6th, Veterinary-Lieutenant Heath, of the First Devonshire Volunteer Artillery, was awarded the Volunteer Officer's decoration.

Obituary.

A VERY wide circle of friends and acquaintances will sincerely mourn the loss of Mr. Cartledge, F.R.C.V.S., of Sheffield, whose death occurred on December 14th, from pneumonia, after a very brief illness, at the age of sixty-six years. A native of Nottingham, Mr. Cartledge graduated in 1848, having previously served a pupilage with the late Mr. Henry Taylor of Sheffield, whose practice he subsequently took over and increased to such an extent as to acquire, in

the course of years, more than an ordinary competency. When the Fellowship degree of the Royal College of Veterinary Surgeons was instituted, he was placed upon the foundation list; he was elected a vice-President in 1858, after which period he was nearly continuously on the Council up to the time of his death, and was President in 1871-72. He was appointed a member of the Examining Board for Scotland in 1859, and on the amalgamation of it with that for London in 1882, he continued to examine in England and Scotland until 1891, when, men and manners having, in his opinion, sadly changed in the Council chamber, he resigned his position as examiner and did not again appear in Red Lion Square. He served for several years as Veterinary Surgeon in the West York Yeomanry Cavalry; was honorary Veterinary Surgeon to the Sheffield branch of the Royal Society for the Prevention of Cruelty to Animals, and was known as one of the best-hearted and most public-spirited men in that city, though his professional reputation extended far beyond it. To those who knew him he greatly endeared himself by his genial and generous character. As a Sheffield correspondent writes:—

The sudden death of Mr. Cartledge will fall upon many friends with all the weight of a personal loss. He could not help being genial and sociable. It was his nature to be kind and considerate. Some years ago, when I had more leisure, I saw a good deal of him. He would call and give me the greatest pleasure it is in any man's power to give me—a few hours in the country, through rural lanes, with the honeysuckle and the wild roses making bright the hedgerows, and between English meadows flecked with the red and roan of patient kine. Memories of many delightful days recur to me now. He was a pleasant host, too, in his own house—well-read, with a fund of old-world lore about Sheffield people and Sheffield places. And few kept closer touch of men worth knowing than he did. Everybody liked him, and, for all I ever heard, he seemed to like everybody. I cannot recall an ill-natured or an unjust remark he ever made about anybody. He was fond of society. He had young and old at his comfortable home on Norfolk Road, and he was equally liked by both. His happiness largely consisted in making others happy, and he who reaches that level is on the uplands of life, where the air is purer and the sun is brighter than in the low-lying marshes damp with the mists of self shutting men in to themselves and their own."

Our deceased friend was in the truest sense of the word, a "gentleman of the old school," and the profession owe him grateful recognition as one of those who attempted and succeeded in raising the veterinary profession to the high position it recently occupied in the estimation of its well-wishers and the public. To those who were the recipients of his friendship, and the sharers of many of his pleasurable days and evenings, his memory will long be a treasured joy, and his all too untimely death a heavy bereavement.

O death, all eloquent! you only prove
What dust we dote on, when 'tis man we love.

J. E. Elphick, M.R.C.V.S., died at Singapore, Straits Settlements, on November 21st, from abdominal cancer. He was formerly an Officer in the Army Veterinary Department, and had served in India and South Africa.

The deaths have been reported of A. C. Robertson, M.R.C.V.S., Worcester, who graduated in 1862, and R. Halpin, M.R.C.V.S., Rugeley, Staffordshire, a graduate of 1889.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF COUNCIL HELD NOVEMBER 29TH, 1892.

W. J. MULVEY, President, in the chair.

Present: Veterinary-Colonel Lambert, C.B., Veterinary Lieutenant-Colonel Oliphant, Veterinary-Captain Raymond; Professor Penberthy; Messrs. Barford, Beddard, Fraser, Hartley, Trigger, and Wragg; Mr. A. W. Hill (Secretary), and Mr. Thatcher (Solicitor).

Letters expressing regret at inability to attend were received from Professors McCall, Williams, and Walley; Messrs. Burnett, Edgar, Mason, Taylor, Merrick, Nisbet, Kidd, Hedley, and Wheatley.

The PRESIDENT: You have been called together to-day in consequence of the Privy Council having forwarded to us the Charter for which we applied some time ago. In the preamble to the Charter it states that Her Majesty considers it desirable that certain things should be done—in fact, grants all that we asked for; but when we come to the enactment clauses, we find that Clause 4 is omitted, the clause which allows an increase of the fees for examination. Our solicitor not being satisfied with this, and considering that he could not legally carry it out in the absence of the enactment clause, desired me to call this meeting, and requested that he might take the opinion of counsel, and he will now tell you the result, and his own opinion of the Charter as it stands.

Mr. THATCHER (Solicitor): I have put a case before counsel, but I do not think I need trouble you with the whole of it; I will give you the salient points. I may mention that I received the Charter, and found that a particular clause which was in the draft had been left out in the Charter itself. I thereupon went to the Privy Council office and saw some one upon the subject, and was requested to put my application into writing, which I did. This is my letter to the Privy Council; it is dated 1st October:—"On the 24th ultimo the Supplemental Charter was transmitted to me from the Home Office, but I was at that time absent from town, and did not return until this morning, when I first had the opportunity of personally examining it. On reference to the enactment clauses I found that Clause 4 in the draft is altogether omitted; this is the clause giving the Royal College of Veterinary Surgeons power to increase the examination fee to £21; and inasmuch as this has never been objected to, and the recital with regard to it is retained in the preamble, I think there can be no doubt that the clause itself has been omitted by mistake, and I shall be glad if the necessary steps could be taken at once to rectify it. As I have no doubt the omission is purely one of mistake, it is hardly ncecesary to point out why it is essential that the clause should appear, still at the same time it may save trouble if I do so. The Charter of 1844 gives the Council power to make bye-laws fixing the fees for examination and admission, but it goes on to say that these fees must not exceed ten guineas. The Charter of 1883 (Clause 2) increases this to any sum not exceeding thirteen guineas, so that you will readily observe that although the College has the power of fixing fees, it cannot by any bye-law override a Charter fixing a maximum amount. This appears to have been recognised by your officers in allowing the preamble in the draft to stand, and there is no doubt that its omission in the actual enactment is purely a mistake. I regret that the draft as finally settled in Royal Council, or at least the engrossment, was not sent to me before the seal was attached, as I should have detected the mistake at once,

and it would probably have saved a great deal of trouble to all parties. I shall be very glad to hear from you on the subject at your earliest convenience, and will at once send back the Charter for correction on hearing to what department it ought to be returned."

I did not receive an answer to this until the 20th November, when I had the following letter:

"SIR—Referring to your letter of the 1st ultimo, with respect to the omission in the recent Supplemental Charter to the Royal College of Veterinary Surgeons of Clause 4 as it stood originally in the operative part of the draft Charter, I am directed by the Lords of the Council to inform you that their Lordships are advised that in the Charter there is clear recital that it appears to Her Majesty expedient to authorise an increase in the fees, and that the examination fees be fixed at a maximum of twenty guineas; and although it might have been more formal and in accordance with precedent to retain the original Clause 4, yet the recital standing alone sufficiently expresses the will of Her Majesty, and enables the corporation to make bye-laws charging the additional fees. I am to return to you the Charter forwarded in your letter of the 13th ultimo.

"I am, Sir,
"Your obedient servant,
"HERBERT M. SUFT."

I have set out in the case to counsel my views as to the matter, and have concluded by asking questions, which he has answered. The first question I asked is—"Is the opinion of the law officers, as expressed in the letter of the 19th November, correct, and can the College safely rely upon it?" The answer is—"In my opinion, the Charter must be construed very much as would be a deed between individuals, and the Crown is as much affected by the recitals or preamble as an individual would be by a recital in a deed under his seal. I think, therefore, that the Crown could not allege in the future that the College had not the authority to increase the examination fees to the extent which the Crown stated to be expedient. In my opinion the College can safely rely upon the Charter as it stands."

The second question I asked was this: "Assuming question No. 1 to be answered in the affirmative, what course should the College pursue if a candidate presented himself for examination and declined to pay the increased fee, and what would be the proper course for the candidate himself to take in the event of the College refusing to examine him on that ground?" Answer: "Under the circumstances suggested in this question, the College should, in my opinion refuse to examine the candidate." The third and fourth questions were these: (3) "Assuming Council to be of opinion that the view of the law officers is not correct, what is the proper course for the College to take to rectify the mistake?" (4) "Assuming the present Charter to be surrendered and a new one applied for, would it be competent for its opponents to renew their opposition on the points which have already been decided? Generally advise the College their best course, having regard to all the circumstances." Answer: "Assuming the opinion which I have expressed in the first answer not to be well founded, I am of opinion that, under the circumstances, it would be imprudent on the part of the College to press the matter further. The Privy Council would, I think, refuse to make any amendment in the Supplemental Charter; and in the improbable event of it being held in the future that notwithstanding the Supplemental Charter, the College has no power to increase the examination fee, the College would then be in the most favourable position for making another application to the Crown to set the matter right. On such an application, the Privy Council, having regard to the correspondence which has passed, could scarcely fail to recommend the

Crown to carry out what is now stated to be its intention. I think if the present Charter were surrendered, it would open the door to the various oppositions which are anticipated.

"C. E. H. CHADWYCK HEALEY."

Veterinary-Colonel LAMBERT: Is Mr. Chadwyck Healey a great authority?

Mr. THATCHER (Solicitor); Yes; he has a considerable practice at the Chancery Bar, and he is a Q.C.

Veterinary-Colonel LAMBERT: Then his name carries great weight, I suppose?

Mr. THATCHER: Yes. I have ascertained who was the law officer of the Crown who advised, and I may say that he is considered to be one of the best lawyers in the kingdom; it is Sir John Rigby, the present Solicitor-General.

Veterinary-Captain RAYMOND: The only remark I have to make is this; it would be as well, in case of future accidents, that we should be able to produce some proof, if we take this Charter as it is, that we have applied for something further than the Charter. The only thing we have received has been from an assistant clerk of the Privy Council.

The PRESIDENT: He is instructed by the Lords of the Council.

Veterinary-Colonel LAMBERT: He is delegated with power by the Lords of the Council; he distinctly says that.

Mr. THATCHER: Yes, he distinctly says that in the letter which I have already read.

Veterinary-Captain RAYMOND: Do I understand from that letter that we can by our bye-laws raise the fees?

Mr. THATCHER: Up to a maximum of twenty guineas—not beyond.

Mr. TRIGGER: Should we be wanting in respect or dignity if we asked for this clause to be inserted? It seems to me it would be more satisfactory if we had this clause in our Charter.

The PRESIDENT: It is in the preamble of the Charter, and the words are—"Now, in view of the increased expense of holding the examination of candidates for membership, consequent upon the progress and extent of veterinary knowledge, it appears to us expedient to authorise an increase in such fees"—you see it is plain enough; that is Her Majesty speaking—"and that the examination fees be fixed at a maximum fee of twenty guineas."

Veterinary-Colonel LAMBERT: It says, "It would have been more formal and in accordance with precedent," if the clause had been inserted in the body of the Charter. Now we are bound up by precedent in this country.

Mr. THATCHER: In the preparation of this case I looked up, as far as I could, the law upon the subject, but I need hardly tell you that it is a case by itself. I found there was a case cited—the case of Howard *v.* the Earl of Shrewsbury, 17 Equity, p. 378—in which it appears that a recital in an Act of Parliament has an operative effect. The question I put here is whether express enactments in two Charters can be overridden by a recital in a Charter of later date.

Mr. TRIGGER: It seems to me that it opens the door to controversy for a student to ask if we have the right to charge him twenty guineas. We cannot get beyond the fact that if we could in any way get that into the Charter it would be better.

Mr. WRAGG: I take it it is impossible for us to get this clause inserted in the Charter. We must apply for a new one if we want it in.

Veterinary-Captain RAYMOND: Is that absolutely certain—that we cannot get this Charter remedied?

Mr. THATCHER: Yes, we can only get it remedied either by surrendering this and having a new Charter, or by having a further supplemental Charter.

Veterinary-Captain RAYMOND: Do you mean surrendering all the rights we have got, or merely throwing up this piece of paper?

The PRESIDENT: It means surrendering all rights we have obtained by it on the chance of getting them back again.

Veterinary Captain RAYMOND: Then the clerks in the Privy Council Office have made a mistake.

The PRESIDENT: Yes, that is it.

Veterinary-Captain RAYMOND: I think we are pretty safe.

The PRESIDENT: There is no doubt that we are quite safe. It would have been very much better if the clause had been inserted, but taking the Charter with the letter from Mr. Suft, and the opinion of counsel, we may regard ourselves as perfectly safe. The only thing that can happen to us is that some time or other a student may decline to pay any more than thirteen guineas; then it is for him to take the initiative, and we are assured by counsel that we are perfectly within our rights.

Professor PENBERTHY: They arranged to pay twenty guineas; they entered on those conditions. In accepting this Charter I do not see that we have anything to lose. We could not get the clause in the Charter if we wanted it altered. If we find we cannot work with this, we can have a new Charter, and begin *de novo*. We have the opinion of our counsel, and we have got the opinion of the Solicitor-General, whose law is based on fundamental principles which cannot very well alter. Our Solicitor has a case in point himself, where he has shown us we should be right in doing what we are doing. There is not one of us who would not rather have it laid down specifically, but the act of the law officers of the Crown I should think is best interpreted by themselves, and we have that letter which of course is as sacred now as the Charter, and would show our *bona fides*. It is not likely, in my opinion, that any student would enter unless he understood the conditions.

Mr. BARFORD: I propose that we receive this Charter as it is placed before us, with the explanations that we have heard.

Mr. WRAGG: I beg to second that.

The resolution was then carried unanimously.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

At a meeting of the Court of Examiners held in London on and between December 12th and 16th, 1892, the following students from the Royal Veterinary College, passed their Examinations.

Mr. J. Toms.
„ W. C. Quinnell.
„ E. W. Thorburn.
„ J. J. Parkinson.
„ A. H. Lane.
„ H. Green.
„ W. Stapley.
„ W. F. Widden.
„ J. A. Gilrath.
„ R. Forshaw.
„ T. W. Smith.
„ G. Upton.

Mr. H. S. Leonard.
„ W. G. Pakeman.
„ A. G. Grist.
„ R. Youngs.
„ J. W. Pritchard.
„ H. L. Tidey.
„ A. E. G. Batt.
„ H. W. Dollar.
„ B. P. Godfray.
„ P. S. Falshaw.
„ J. B. Burr.
„ H. Reynolds.

The following students passed their Second Examination.

Mr. W. Lindley.
„ H. Custance.
„ W. Newman.
* „ A. H. Stroud.
„ H. Mason.
„ G. Tomlinson.
„ G. Parr.
* „ S. L. Stephens.
* „ A. H. Job.
„ C. M. Lawton.
Mr. E. Bell.
„ F. H. Pagson.
„ E. L. Stroud.
„ H. Sturge.
„ R. G. Saunders.
„ E. H. Fisher.
* „ W. Fowle.
* „ T. E. Jones.
* „ J. A. Craft.

The following students passed their First Examination.

Mr. J. B. O. Taylor.
„ W. Wordley.
* „ H. W. Chappell.
„ C. W. J. Tennant.
„ F. W. Cox.
* „ A. Edie.
„ S. W. Pratt.
„ A. H. Berry.
*Mr. J. P. Heath.
„ F. B. Gresham.
* „ C. F. Walters.
* „ F. W. Dowell.
„ T. J. Hunting.
„ J. H. Engel.
„ J. W. M. Carroll.
„ C. A. Powell.

ARTHUR W. HILL,
Secretary.

Marked thus* passed with great credit.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

ANNUAL MEETING.

THE annual meeting of this Association was held at 10, Red Lion Square, on November 25th, 1892, when, owing to various circumstances, the attendance was unusually small. The President (Mr. H. G. Lepper, Aylesbury) occupied the chair, and there were present Messrs. W. Wilson, J. D. Barford, T. B. Goodall, F. W. Wragg, J. P. S. Walker, and J. S. Hurndall: as visitors, Professor W. A. Edgar, of Dartford, and Mr. H. J. Goodall, of Melton Mowbray.

Apologies for inability to attend were received from Mr. James F. Simpson, Mr. Verney, Mr. Flanagan, Mr. Irving, Mr. W. Wheatley, Sir Henry Simpson, Professors Williams, Walley, Smith and Penberthy.

Professor Penberthy wrote:—"I really regret being unable to attend, as a most useful discussion should follow this paper (Mr. Goodall's) which is of no ordinary character. Though I think some matters may be debateable, the evident acute personal observation which the subject has received, lays on the profession a debt of gratitude and acknowledgment to Mr. Goodall."

New Members.

The following gentlemen were, on the proposition of the President, seconded by the Hon. Secretary, unanimously elected members of the Association: Mr. H. G. Rogers, of London; Mr. Hatch, of Beaconsfield; and Mr. Owen, of Thame.

Lithotomy Instruments.

The HON. SECRETARY reported that the President had found some difficulty in keeping within the precise limits of the sum set down for the purchase of these instruments—£20. The actual cost, with the discount, came to £28;

but Messrs. Arnold and Sons had under the circumstances very kindly asked the Association to accept a donation of five guineas towards the cost.

The PRESIDENT said they were indebted very much to Professor Axe for his kindness in superintending the manufacture of the instruments, by which several improvements had been effected.

Financial.

The HON. TREASURER presented his statement of accounts for the year, which showed £25 3*s.* 6*d.* received. The working expenses had been very light, amounting to only £9 1*s.* 6*d.*, and there was now a balance to the credit of the Association of £85 3*s.* 8*d.*. There were 55 members at present on the roll. In conclusion, Mr. Walker asked to be relieved from the office of treasurer, which he has held for 8½ years, ever since the formation of the Association.

Election of Officers.

Office-bearers for the coming year were then unanimously elected as under, Mr. Walker having been persuaded to hold the treasureship for one more year:—President, Mr. J. D. Barford, of Southampton; Vice-President, Mr. J. P. S. Walker, Mr. Verney (Oxford); Mr. T. B. Goodall (Christchurch), and Mr. H. G. Lepper, (the retiring president); Hon. Secretary, Mr. J. Sutcliffe Hurndall.

Place of Next Meeting.

On the proposition of Mr. Wragg, seconded by Mr. Wilson, Reading was unanimously decided upon as the place of next meeting.

The British Institute of Preventive Medicine.

The HON. SECRETARY read communications respecting this proposed Institute from Sir Joseph Lister and Dr. Fleming.

Mr. BARFORD thought as this Association was in such a satisfactory financial position it was only right they should subscribe towards the fund being raised, as he believed the Institute would do much to advance the veterinary profession.

Mr. WILSON heartily concurred, as did the President; and Mr. Barford gave notice that he would put a notice on the subject on the agenda paper for the next meeting.

The Nasal Chambers and Facial Sinuses of the Horse.

The PRESIDENT expressed great regret that there were not more members present to take part in and hear the resumed discussion on Mr. T. B. Goodall's paper on this subject (read at the Maidenhead meeting). Unfortunately at their third meeting in London the Association never had had so many members as at the spring and summer meetings, and perhaps the fact that that most interesting and valuable essay had been printed and circulated had something to do with it. As Mr. Hurndall moved the adjournment of the discussion until that day perhaps he would be good enough to re-open it.

Mr. HURNDALL said he had rarely had the pleasure of listening to a paper that had evidently involved the writer in so much close thinking and work. As it certainly deserved at their hands something more than extempore speaking, at any rate upon the part of the one who took on himself the position of opening the discussion, he should make no apology for reading his remarks. He said: In attempting to re-open the discussion upon Mr. Goodall's most excellent paper entitled "The Nasal Chambers and Facial Sinuses of the Horse," read at the summer meeting of this Association held at Maidenhead on June 24th, 1892, on that auspicious occasion when we were so luxuriously fêted by our esteemed colleague and friend Mr. James Simpson, during the period of his mayoralty for the borough which he honours by his

residence, I am assuming a somewhat onerous responsibility; for I do not hesitate to affirm with considerable confidence that the merits of Mr. Goodall's essay are of a very high order, and he who attempts to discuss the paper should be cautious to see to it that his remarks are somewhat worthy of the subject and the occasion. Rarely, if ever, has it been my lot to listen to a more carefully thought-out subject, even by one whose practice in literary work placed him in the front rank of our profession, and certainly never from one who, as Mr. Goodall tells us he is, is a busy, every-day hard working practitioner in a country district. All honour therefore to Mr. Goodall, and the Association which he honours by his membership. I trust sincerely that Mr. Goodall's example in so worthy a direction will serve as an incentive to some of our younger members to go and do likewise; then as members of the Royal Counties Veterinary Medical Association, we shall have good cause to be proud of our body. Personally I feel deeply indebted to Mr. Goodall for the work he has done, and beg herewith publicly to express my high appreciation of the literary and scientific attainments he has placed at the service of the Society of which I am but an humble officer.

Free discussion, untrammelled by any arbitrary laws, is one of the privileges we enjoy in this glorious old country of ours, at all events with one exception, namely, Ireland; but as I am not proposing to enter upon matters political, this single exception has no bearing upon our Association; fortunately we are not called upon to express our individual opinions, where feelings run so high as they do on the relations of countries one to another, and we may, at all events in the veterinary profession, venture to express views that are diametrically opposed to orthodox and accepted principles, without running the risk of being scouted as quacks, or shunned by the main body of the profession as though not deemed worthy of even civil recognition. Personally, I have always received from my professional brethren the greatest consideration, although holding views on matters therapeutic that are totally opposed to orthodox rules; for this reason I congratulate myself that I am a member of the veterinary rather than the medical profession—although from a financial point of view I am certain I am the loser.

Freedom of discussion is an invaluable privilege, but we need also if we would properly appreciate our opportunities, rightly gauge the meaning of the word *discussion*. We were told at Maidenhead by Mr. Hunting, that his idea of discussion was to raise questions only upon the subject under consideration with which he disagreed, and to allow those points about which he was pretty much at one with the essayist to pass unnoticed; now I venture to suggest that is a very one-sided view, and is calculated not only to discourage an essayist, but also to miss all the good that might otherwise be obtained from a well-written and digested paper; no doubt facetious criticisms and sharp repartée, amounting only too often to carping objection, is at the time calculated to make a fleeting and temporary impression on the minds of hearers, and to tickle the mental fancy; moreover, it may perhaps convey the idea that the speaker is a very clever fellow, but on reflection this sort of discussion will not bear comparison, in solid results, with the thoughts of one who endeavours to discover all that is good in an essayist's production, and confirm and add to the thoughts and presentments he has advanced out of the resources of your own practical experience; touching lightly on merely trivial points of difference while only allowing keen criticism on vital principals, such, roughly, is my view of how discussion should be conducted, and on these lines I propose to deal with Mr. Goodall's paper.

There is undoubtedly among those of us whose daily calling only very occasionally makes a demand upon our practical acquaintance with anatomy and physiology, a tendency to forget what little we ever knew of these sciences; indeed, I have on occasions, far too numerous for creditable recapi-

tulation, met with members of the veterinary profession, who, if one must believe what was heard, rather prided themselves on how little they really knew of these and cognate sciences, but who were boisterously loud about their vaunted knowledge of practice. Practical men they called themselves; practical men, forsooth! how can a man practise what he does not understand, and if he does not first of all master the theoretical details of what he has to do, how can he do it? No! these proudly vaunted practical (?) men are among the most ignorant in the profession, and are correspondingly a disgrace to it. We have therefore—if we would deal honestly with ourselves—to thank Mr. Goodall for his somewhat caustic remarks on the lamentable ignorance of anatomy and physiology which some of us—not forgetting myself—display.

Mr. Goodall has given clear proof in his paper, that he is a master of these sciences, so far as they apply to the nasal organs, and why? Because he has given special attention to that organ and its functions; perhaps if some of us were to take him to task right off the reel, without any chance of rubbing up or refreshing his memory on some other organ of the animal body, we should find that he was—well to put it mildly—not quite so well versed in the details thereof as in his own pet subject. I am not finding fault with Mr. Goodall for his denunciations of the ignorance of his brethren, not at all; it does, or it ought to do us good to have a little of the conceit taken out of us occasionally, and without doubt our friend selected a subject behind the ramparts of which he could safely ensconce himself without much risk of being peppered in return, although our friend Hunting, with his customary boldness and readiness for the affray, made an attack upon the ramparts, and I anticipate when Mr. Goodall makes his sally, our friend will find himself ignominiously driven back without any opportunity of retrieving his fallen fortunes. The anatomy of the parts is the chief feature of Mr. Goodall's paper, and while I desire to deal hereafter mainly with the treatment of the disease—ozœna—which I suppose first suggested the idea of the subject of the essay to Mr. Goodall's mind, I must say that it is no small satisfaction to me to learn that the chief objection raised by scientific men to the system of treatment I have so successfully adopted in cases of ozœna, is completely overthrown by the anatomical proof that "the medicinal agent readily gains an entrance from the nasal chamber to the sinuses"; and this affirmed in the most positive manner, as against the assertion of my friend Professor Smith, who had previously stated as follows: "I hold that it is an absolute impossibility for any agents injected up the nostrils to find their way into the upper and lower sinuses." Now, I don't know whether Professor Smith is prepared to admit that he made an error on this occasion, or whether he is prepared to modify the statement, or if he still persists in the truth of his assertion; but of one thing I am certain, that whether in the manner stated by Mr. Goodall or not, medicinal agents do enter the sinuses from the nasal chamber, and Mr. Goodall seems to make it quite clear that it is anatomically possible for them to do so, quite independently of the probability of their gaining an entrance into the sinus through the intervention of the circulation of the blood. My own view has always been, that a medicinal agent in solution could obtain entrance into the sinuses through both media before named, in addition to the very feasible possibility that osmosis through the schneiderian membrane plays no insignificant part in the process. In treating of the causes of ozœna I am not prepared to agree entirely with Mr. Goodall that the introduction of foreign substances into the sinuses would produce ozœna proper, indeed, I go so far as to say that I doubt it, that a foreign substance, introduced into one of these sinuses lined as it is with such a delicate and sensitive membrane, would not set up irritation that might lead on to pathological developments simulating some of those of ozœna I am not prepared to dispute, but my contention is that would not be ozœna proper!

and for this reason the sequelæ of such injury would be all the more difficult to deal with, because the cure could not be affected so easily through the system as in the case of a purely idiopathic disease, which I believe ozœna to be; in other words, I am of opinion with Professor Smith that ozœna is an extension, or as I should term it a pathological development, or ordinary catarrh; this is one of the reasons Professor Smith assigns in accounting for the cause of ozœna; I do not understand that it is the only cause to which he attributes the origin of ozœna, though I am fain to confess that, up to the present time, I have not been able to satisfy myself that the disease is attributable to any other cause than a pathological development of ordinary catarrh; and I am confirmed in this belief because the drug which I have invariably relied upon in the treatment of simple ozœna commences when given to the healthy subject in producing the following pathogenetic effects; first, common catarrh of the mucous membrane, the natural secretion after slight increase gradually assumes an abnormal character, both as to quantity and quality; while in the first instance it is clear and transparent, it always has a tendency to tenaciousness; as the pathogenetic influence of the drug is maintained, the consistency of the secretion changes gradually from transparency to a thick glutinous form; colour either yellow or green, and so the changes proceed until, as the result of erosion and ulceration, blood is discovered in the mucoid secretion.

Thus it will be seen that step by step the pathogenetic action of the drug referred to tallies exactly with the process of development observed in true cases of ozœna. In cases of injury to the membrane lining the sinuses from the introduction of foreign substances, the pathological developments, starting at acute inflammation and ending at ulceration, are much more rapid; in which case it may materially assist the drug to effect its cure, if by means of trephining it can immediately be brought in contact with the membrane in volume. The conditions which have brought about the disease of the membrane differ from those of a simple idiopathic ozœna, and the application of the drug may with advantage be varied, while in both cases its application would prove useful.

I would therefore suggest for your earnest consideration the difference which I believe exists between an idiopathic and a traumatic ozœna, and the thought may help to clear up some of the difficulties which exist in endeavouring to account for the facility with which some cases are cured while others seem to resist our best efforts. I may mention that the drug I rely upon for the treatment of this disease is the hydrastis canadensis, and I look upon it as superior to chloride of zinc, carbolic acid, and boric acid, because of its elective affinity for mucous membranes and the therapeutic relations which exists, according to the law of drug selection upon which I rely, between its pathogenetic and curative properties. Moreover, chloride of zinc, and carbolic and boric acids, if applied in substantial quantities, have each a caustic and irritant effect upon mucous membrane, and whatever curative effects are obtained by their application are secured in virtue of their antiseptic properties, and not because there is any therapeutic relation between either of the said drugs and the disease under consideration.

It is quite clear from Mr. Goodall's remarks under the heading *Therapeutic Agents*, that he has not invariably obtained satisfactory results from the use of these drugs, while on the other hand I have found that hydrastis never fails, and the success is obtained without the irritant effects upon the mucous membrane that is usually observable after the application of the drugs advocated by Mr. Goodall; indeed, I look upon their action on mucous membrane as equivalent to an ordinary counter-irritant.

Referring to Mr. Goodall's remarks upon the influence which decayed teeth have in the production of ozœna, I am fully in agreement with all he says upon

the subject, and while he seems to admit that decayed teeth are occasionally responsible for the production of this form of disease in the lining membrane of the facial sinuses, I should go much further, and do not hesitate to state it as my firm conviction that the one form of disease has neither relation nor connection with the other; the fact that horses which are the subjects of ozœna, and at the same time have carious teeth, is merely a coincidence. Moreover it is quite possible to arrest the carious process in teeth, even when far advanced, and to disperse an abscess situate at the end of a fang; but the remedy which is capable of acting therapeutically in this direction would have no influence at all over the pathological condition known as ozœna, a fact which I contend goes far to prove that the two diseases have no relation to one another, and that hence the one cannot by any stretch of the imagination be made responsible for the production of the other. I believe I am not wrong when I say that the mucous membrane lining the facial sinuses is in reality a continuation of that which lines the nasal chamber, known technically as the schneiderian membrane. This being so it is not difficult to understand that catarrh well established in the schneiderian membrane would readily extend to the membrane lining these sinuses, and that once the diseased process reached this quarter of the animal economy it is not unreasonable to affirm that if such diseased process is to be arrested it must be effected through the action of an agent having a specific relation to the affected tissue. Now those who have gone experimentally into the action of hydrastis canadensis, know that the drug has an especial affinity for mucous membrane wherever it exists in the animal economy; that it has the power of producing on the healthy subject a catarrhal condition of mucous membrane which, if administration be continued gradually, advances from one stage to another until ulceration is thoroughly established; and, at the same time when these various pathological conditions are developed idiopathically, that whether applied topically or internally it has the power of arresting the disease process. I therefore submit that I have reason on my side quite independent of my own practical proofs, none of which have ever been unsuccessful, that in the hydrastis we have a remedy for ozœna that need never fail if properly and industriously followed up; and I would further submit that, with the exception of such cases as Mr. Goodall has cited where foreign substances have obtained entrance into the sinuses, it is ever necessary to trephine or otherwise operate surgically, and then only with a view to the removal of such foreign substances. The range of catarrhal diseases affecting mucous membrane is rather extensive; indeed I may say co-extensive with the animal economy. For instance, in my own experience I can refer you to a form of dyspepsia due to catarrh of the stomach, in which hydrastis or one of its alkaloids, hydrastia, simply worked wonders; then again in cases of intestinal catarrh, which goes under the name of chronic diarrhœa, I have observed some really marvellous cures from hydrastis. Indeed, I might occupy a good deal of time in recapitulating details of catarrh affecting other organs of the body lined with mucous membrane, where this remedy has proved quite a saviour from suffering. You will not be surprised to learn that a drug having such a marvellous affinity for mucous membrane should prove also to be efficacious in some forms of skin disease, more especially when the exudation is of a moist character, calculated to lead on to ulceration if neglected. I have found it especially beneficial when applied as a cerate, prepared with highly refined lard, to cows' teats when they are cracked, oozing, and fearfully painful and sore; indeed, the rapidity with which they took on the healing process under the influence of this dressing was simply marvellous. I beg you to excuse this slight deviation from the main subject, but I was anxious to show that it is from a truly scientific standpoint this remedy is selected for, and proves successful against, so troublesome a disease as ozœna.

In concluding these remarks, I must not omit to point out that there is one condition occasionally found in ozœna, where the ulcerative process has so far advanced that the bones have become affected; in which case a permanent cure would not be realised with hydrastis alone, as the influence of this drug does not extend to bone tissue; but there is no reason even then to despair of effecting a cure, as it would be only necessary to vary the treatment by the alternate internal administration of arseniate of gold with hydrastis. I have had but one case during my professional experience in which I had to resort to this remedy, and then realised the most satisfactory results; but this very exceptional remedy was tested and successfully applied by two French physicians, Dr. Chrestien and Dr. Massart, in diseases affecting the bones, as also in a number of cases of phthisis, which conclusively proved what a powerful agent in such destructive diseases as these the arseniate of gold is.

I must apologise for occupying so much of your time, and once more beg to thank Mr. Goodall for the excellent material he has so ably introduced for discussion before our Association.

(To be continued.)

THE MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of this association was held at the George Hotel, Rugby, on November 11th. Before commencing the meeting, the members were entertained at luncheon by Messrs. Over and Barber, of Rugby, after which, in the absence of Mr. F. W. Barling, the President, Mr. J. Malcolm, one of the Vice-Presidents, was voted to the chair.

There were also present Messrs. W. Hunting, London; Stanley, J. Blakeway, Birmingham; Dawes, Collett, West Bromwich; Perrins, Worcester; Crowhurst, Leamington; T. J. Merrick, Northampton; Huband, Cheltenham; Carless, Stafford; Thompson, Coventry; Cole, Hinckley; King, Newport Pagnell; Pemberton, Bridgnorth; Grasby, Daventry; Barrett, Nuneaton; Wartnaby, Burton-on-Trent; Burchnall, Loughborough; Proctor, Solihull; Jones, Leicester; Blunt, Lutterworth; Over, Barber, Rugby; Marriott Northampton; Bainbridge, Wellingboro'; Horton, Warwick. Visitors, Messrs. Wilson, H. G. Rogers, G. W. Lansley, C. W. Crofts, Pierce, Dix, &c.

Mr. MALCOLM explained that Mr. Barling was unable to attend in consequence of the illness of his son, but the members would be glad to hear that a telegram has just been received saying he was a little better.

New Members.

The following gentlemen were then nominated for membership: Mr. Hayward of St. Marks, Leicester, by Mr. H. Blunt. Mr. W. Eaton, Twyford, Leicester, by the same member. Mr. Trevor Spencer of Bromyard, by Mr. Perrins. Mr. Blunson, Cirencester. by Mr. Dawes.

The following gentlemen were elected members:—G. E. King, Newport Pagnell, W. Grasby, Daventry; J. J. Crowhurst, Stratford-on-Avon.

Mr. MALCOLM said he was sorry to inform the members that Mr. Halpin of Rugeley, who had been nominated, died that morning of typhoid fever. He was a very promising young member and would have been a very powerful addition to the association. They all regretted exceedingly his untimely demise.

The following address was then delivered by Mr. W. HUNTING, F.R.C.V.S.

The Movement of the Horse's Foot in Health and Disease.

This, he said, was an extremely interesting and important question, as it was related to several pathological conditions and was inseparably connected with that important subject horse-shoeing. If they knew exactly the functions of the foot, and how they acted, they would be better able to understand their foot cases, and also the difference between good and bad horse-shoeing. *Concussion, Contraction* and the Principles of Shoeing were the practical points he should try and keep in view.

When the horse stands square on his feet the weight rests on the bones, which act simply as a column of support, but the obliquity of the pasterns detracts from the strength of the column, and so you have brought into action certain muscles and tendons. The obliquity of the pasterns requires that the bones should be held in position by means of some other support than their own joint-ligaments. The question is what structures keep the leg firm and preserve the position of the pastern. I believe it is generally said that the back-tendons—assisted by the check ligaments and the suspensory ligament—do so. Now, I do not believe that the suspensory ligament has such a primary action in this function as is generally believed. There is no doubt that in extreme extension of the limb the suspensory ligament has a great sustaining task, but at ordinary times in progression, the muscles, the back-tendons and the check ligaments fulfil the function of preserving the obliquity of the pasterns. When the foot is tremendously extended, as it is when the horse is galloping, the obliquity of the pasterns is much greater than in the common standing position. Now if the suspensory ligament be a firm unyielding fibrous tissue, it would be possible for it to be stretched to allow this over-extension of the fetlock, which occurs in galloping. If, then, the suspensory ligament helps to preserve the foot and fetlock in its proper position to the limb in quietude, it would be impossible for it to be stretched in accordance with the altered angle which obtains in that great extension accompanying the gallop.

The chief method by which the obliquity of the pastern is preserved during the movement of the limbs is by the muscles and tendons, and I do not believe that in ordinary action there is very much stretching of any of the white fibrous structures. I do not believe any of the ligaments are ever stretched to their full extent. I believe that the muscles take the whole of the weight of the animal—that you have, in fact, the safeguard against concussion in the paces of the horse in proper co-ordinate action between the flexor and the extensor muscles. As the weight never comes upon the white fibrous structures, it is only when the muscles fail to act co-ordinately that any jar occurs, or strain to the inelastic structures. For a simile imagine two men sawing a log of wood—one at each end of the saw. So long as they pull and push alternately the whole thing goes rhythmically—there is no jerk, but if one of them forgets to relax his muscles when the other pulls, or the other pulls too soon, or pushes too soon, then you have a jerk either on the men or the saw. And the same with the horse. As long as the flexor and extensor muscles act harmoniously the whole thing goes rhythmically and you have no jar, but jar occurs when there is failure of this rhythmical action.

In a recent book on physiology, which appears to my mind the best English book on veterinary physiology, Mr. Fred Smith offers an explanation of the action of the suspensory ligament that I cannot accept. Everyone has noticed when a horse is moving rapidly that when the foot has rotated on the ground and is again being raised the foot seems to spring up. Now Professor Smith says this is due to the suspensory ligament being elastic. When weight is on it is stretched and when the weight is removed, that is when the foot leaves the ground, the rapid flexion is due to the rebound of the elastic tissue. Now

I cannot believe that there is any such rebound as that in the action and the movement of the limbs. If you had such a rebound the muscles would not be able to act synchronously with it. Another reason is, I can't see that there is any proportion of the yellow elastic fibres to cause such a rebound, and the white fibres are non-elastic.

In speaking of concussion as a cause of injury in the horse, I repeat that I believe the great anti-concussive provision for the limb is the action of the muscles. So long as the muscles take the weight you have no fear of concussion. The foot is put down and taken up rhythmically and harmoniously. When two men walk along the street talking they walk as perfectly as ever, the whole movement is automatous; but if they happen to come to a place where there is an unobserved hole in the road or it may be a rise, the muscles go on acting automatically and the foot is put down two inches lower or higher than the other and consequently there is a jar. In the same way when we have concussion in horses it is due to a step of that kind—weight is thrown upon inelastic ligaments by the failure of the animal to co-ordinate his muscular movements.

Now concussion, so called, I suppose to be the cause of split pasterns and fractured coffin bones. But how is it this does not happen oftener? and how is it they often happen on solid level ground? Near Edinburgh there are some level sands whereon horses are galloped, and these horses, Professor Williams states, often meet with such accidents as fractured pasterns. You would think level sand would be the last place where horses would meet with such concussion as to fracture a bone. I am told that the circus ring is another place where such fractures occur, but possibly they may here be explainable more easily as due to failure of muscular co-ordination. I incline to think there may be some explanation of the cause of fractured pasterns we have not yet got at. I once saw a case of a fractured pedal bone. It occurred in a big heavy horse with a badly cankered foot—one that the animal put to the ground gently, and under no circumstances you could imagine could the foot be jarred by being put down roughly. Nearly half the horny sole had gone, and yet when this horse was killed on account of a sudden increase of acute lameness, it was found that it had fracture of the coffin bone. Now how did the jar occur to break that with a perfectly vertical fracture. I don't offer an explanation; I ask for one.

Coming specially to the foot this organ assumes different relative positions according to the movement of the limb, different positions in relation to the rest of the limb and different positions in relation to the ground. Supposing he be trotted he puts the heel to the ground first—and I believe that all horses in all paces on level ground put the heel down first. I believe that for two reasons. First because provision is made at the heels for concussion. All the soft portions of the foot, or nearly all, are at the heel as if to ward off jar. And another reason is that when the foot is extended it would be extremely difficult to imagine that the toe could touch the ground first. It is impossible to understand how it can unless you have a double action of the muscles. Ordinary progression is affected by simple alternate extension and flexion of the limb, and this is accompanied by extension and flexion of the fetlock. When the whole limb is brought forward in furthest extension the fetlock is in the position of having the heel nearest the ground, and it would be curious mechanism that there required the flexors of the foot to act so forcibly as to bring the toe to the ground first. Fortunately we need not argue on a theoretical action of the limb. Instantaneous photography shows clearly that the heel reaches the ground first, and this is quite what might be expected from a consideration of the anatomy and physiology of the parts.

After the heel is put to the ground the whole of the ground surface of the foot sustains the weight whilst the body passes over the bearing point, and

weight is thrown forward on the toe of the foot until the body is sufficiently advanced to rotate the toe on the ground.

Accompanying these movements you have certain movements of the hoof itself. There has been for many years a long discussion about the expansion and contraction of the foot as it rests on or is raised from the ground. I have never argued that the hoof was inelastic and that there was no movement. I am quite willing to admit that there are certain movements taking place, and in view of the experiments recently made I am inclined to allow that expansion, though not of great practical importance in relation to horse-shoeing, is of importance physiologically.

It is proved by experiments with instruments and electrical connections, that you have a movement as soon as the weight comes to the ground. You have expansion of the coronet at the heels—there is no doubt about that—you can see it in the horse that is moving slowly. It was also shown by Lungwitz that a very strange thing happened according to the relation of the frog to the foot. This expansion was most marked when the frog took a decided bearing upon the ground; but if the frog took no bearing on the ground there was more or less contraction. I do not think Lungwitz has explained how this happens, but I have seen an explanation in a paper written by a recent graduate, and I hope soon to be able to publish his views.

If I interpret him rightly, it is something as follows:—You know that the plantar cushion consists of a network of white fibrous tissue having strong bands running transversely across from one lateral cartilage to the other, and being firmly connected to those elastic structures,

Now when the horse puts his foot upon the ground and rests his weight upon it, the pastern descends backwards and thereby presses on the plantar cushion. The result of that pressure is to put the weight upon the middle of these transverse fibres, and the effect of pressing down the transverse fibres of the cushion is to draw in the two cartilages to which it is attached. If you put pressure upon the centre of a piece of string stretched taut by two weights at the ends, it will pull in the two weights attached to the end. In the same way pressure by the pastern bones upon the transverse fibres of the plantar cushion pulls together the lateral cartilages to which the fibres are attached. When then the plantar cushion is able to yield downwards, as it does when no frog is between it and the ground, we have contraction of the heels at the coronet. But if you have a frog taking its proper bearing upon the ground the plantar cushion cannot yield downwards. It is pressed above by the bones and below by the frog, and the soft tissues are thus driven outwards, causing expansion upon the top of the coronet. The whole thing depends upon the frog and the pressure downwards of the pastern bones upon the plantar cushion.

Now it seems to me that this is a very correct explanation, and there are two or three things that follow. If you have a horse with no frog pressure you have high and narrow heels. You have contraction of the hoof due to shrinkage of the plantar cushion, because the absence of frog pressure denies it its proper healthy function. The wall is being gradually and constantly drawn inwards, simply because the weight on the plantar cushion has that effect. If you had a frog underneath taking a bearing on the ground, the plantar cushion, when sustaining weight, would be expanded laterally.

One would say then that all those people who shoe with clips on the heels, and shoes with screws, which are going to relieve contraction of the feet by pressing them out, are wrong in principle, and that the proper thing to expand the foot is to get frog pressure, so that the plantar cushion may take its proper normal function.

Some time since Dr. Macdonald pointed out that when the horse's foot came to the ground, and this expansion takes place at the back, there was absolutely

a contraction of the coronet in front. Lungwitz's experiments also showed that when the horse was in motion and the pastern bone was in an upright position that you have an expansion of the coronet, whilst when the pastern inclined backwards upon the plantar cushion you have a contraction. It seems to me that you would naturally expect that from the movement of the hard structures within the hoof upon the soft structures. One of these soft structures in the foot has been often overlooked, viz., the blood in the vessels, until attention was specially directed to it by Dr. Macdonald. It is important to remember the action of the blood contained in the vessels of the foot. Every time a horse's foot comes to the ground, there must be some blood squeezed out of the vessels, but I do not believe they are entirely emptied. I do not believe that the movement of the bones within the hoof of the living horse is at all like that of a dead subject. There is always sufficient blood in the vessels of the foot of a living horse to prevent any rocking or appreciable movement of the pedal bone from the wall. Nature has provided around the coronet an extremely large plexus of blood vessels into which a quantity of blood from the soft tissues within the hoof might be squeezed. When the horse puts his weight upon his foot great pressure is put upon the blood in the pedal vessels, its velocity is increased and the plexuses of small vessels are distended, as are probably all the other valveless veins least affected by the pressure of the hard structures within the hoof. As the weight passes from heel to toe, the vessels of one part are pressed whilst those of another are relieved, and so some distension of one soft part may take place at the same time that collapse of another attends the lesser quantity of blood in its vessels.

One now comes to a much more difficult point to understand when he comes to the movement of the sole. It is said by Lungwitz and Smith, that when the weight is placed upon the ground, the arch of the sole descends. I will not say I disbelieve the electric battery, but I do say I cannot at all understand how that can be in regard to the anterior part of the foot. Until other experiments are made, I am not going to accept the descent of the sole, because that requires one also to believe that the pedal bone descends within the hoof. The laminæ are white fibrous structures, and I cannot understand how any yielding can take place there. More than that, if the sole descends, the suggestion would be that to keep the sole elastic, it should be more or less thin, so that it might more easily descend. We know that that practice has been tried and proved a miserable failure, and that the stronger you leave the sole, the better it is for the horse, and the less possibility there is of it descending, and the arch becoming flattened by the weight. Again, if the arch of the sole descends, you must have some bulging of the walls surrounding it. If the arch flattens, its abutments must be driven outwards, and, therefore, I believe that the fact that the wall of the hoof, at any rate, in its anterior part, does not expand is another proof that the sole does not descend.

It is pointed out as an argument in favour of this action of the laminæ, that in cases of laminitis, the pedal bone is driven backwards from having lost its attachment to the laminæ in front, whilst being drawn into a vertical position by the flexor tendons behind, Now, I cannot believe in any such mechanical action as that, because in no case I ever saw was there a space between the laminæ and the wall of the hoof. It only occurs in very bad cases, and it is due to the extra exudation that takes place from the sensitive laminæ. This exudation gradually collecting between the wall and the bone, presses the bone backwards and downwards, and then you have the abnormal position of the bone, which causes the point of it to come through the sole. Contraction so-called, as a cause of disease, I don't believe in at all; and I do not think, perhaps, there are many of us who do. I look upon contraction always as a

result of disease. It may be sometimes that the disease is so slight and so wanting in definite symptoms, that one does not notice it until one gets contracted foot Of course, disease of the laminæ causes wasting, and navicular disease may cause contraction of the hoof; but, as a rule, I believe the beginning of certain chronic diseases of the foot is due simply to the plantar cushion, and the proper thing to do is to restore the functions there by getting more pressure on the frog.

The existence between the hard tissues and the wall of a large vascular surface, permits a certain amount of movement. That movement is very little, but even that little is of great practical importance in maintaining healthy nutrition.

In the early stages of what is called navicular disease, or in those cases where you have every symptom of navicular disease, one is inclined sometimes to think that it is an incurable condition, and you then either get rid of your horse or kill him. Now, after you have established vascular activity in the foot (and I do not know of anything else you do except increase the activity of the circulation), by frequently working the animal, you will very often have a speedy recovery; perhaps I shall make myself clearer if I state a case. You are called to see a horse that points his feet, or, it may be, both fore feet. He is lame for ten minutes after he leaves the stable, and then he goes fairly well. The suggestion is that you have some disease in the structure of the navicular bone. I know two or three instances where we worked the animal every day for some weeks at the risk of being prosecuted, and then got absolute soundness and natural enlargement of the feet.

Now these changes cannot be due to diseases of the bone, but are, I think, due to vascular affections; and all that happens is that you re-establish functional activity in every part of the foot by working. When you get the foot to resume its proper form and action merely by constant daily exercise and shoeing the horse with tips, all I can say is that you bring every part of the foot into equal vascular activity. It causes some pain, but it is well worth causing from the results you obtain. There is another point I want to mention. In the back of the foot you have the thinnest part of the wall. Now if you shoe a horse, say for corn, and to relieve the pressure, leave a space between the wall and the shoe at the heels, you will find that when weight is placed upon the foot there is contact of horn with shoe—in fact the hoof is so thin and elastic as to allow a downward yielding of its posterior parts. That, of course, is a yielding shown in abnormal conditions. The fact is evidence that if you fit a fancy shoe to a foot so that an abnormal motion is permitted, such abnormal motion is possible. If you fit the shoe level to the foot no such movement takes place; and the only reason you have that movement down is because there is nothing underneath the hoof to support it. Now I have heard it argued that this is a natural condition of the foot which ought to be provided for, and upon that bit of physiology you are taught to "ease the heels" of all horse shoes—to fit your shoes so, in fact, that you can pass a pretty thick knife blade for an inch or two between the heel of the shoe and the heel of the foot. I submit that this is entirely a mistake founded upon an erroneous notion of the physiology of the foot, and about the very worst thing a man can do when he is shoeing a foot. The "eased-heel" shoe simply means sacrificing an inch and a-half of the very best bearing surface of the horse's foot. It means also concentrating the pressure, which ought to be upon the whole foot, upon the anterior half. And any horse that is shod for long with eased heels has weak quarters as the result of the extraordinary pressure upon them, and he generally goes badly, even when not lame, because you fail to utilize as a bearing surface, the best part of the horse's foot, that is, the last inch and a-half of it.

The CHAIRMAN said that they were very much indebted to Mr. Hunting for

his very able address, which opened up a wide field for discussion. Reviewing some of the points of the paper, he said with regard to expansion of the horse's foot that it was a subject upon which Mr. Hunting had been a party man and upon which had taken a very strong line, but his views appeared to be somewhat modified to what they were at one time. The question of contraction of the foot and the effect of shoeing with tips also offered a wide field for discussion.

Mr. PERRINS said he should like to ask Mr. Hunting first of all what he considered to be the causes of corns. His experience was that pressure caused corns, and by taking the pressure off, they relieved the heels and the horse goes sound. Then with respect to the suspensory ligament, he quite agreed with Mr. Hunting in saying that it was non-elastic. And he should like to know what he meant by check ligaments. His experience always led him to believe that pressure created expansion, and where they did not get the frog in contact with the ground and did away with that pressure, he could readily understand that they got contraction of the lateral cartilages. But where they got proper pressure of the frog upon the ground, then they did not have contraction but expansion.

Mr. WARTNABY tendered his thanks to Mr. Hunting for his very instructive paper. He quite agreed with regard to the suspensory ligament; he did not think it took any part in the contraction of the leg, when the horse's foot is raised from the ground. He had always been led to believe that they never come into operation except under a strain, *i.e.*, when the back tendons were strained and the check ligaments were called into operation to check it. With regard to this band of white fibrous tissues Mr. Hunting spoke about, bridging from heel to heel and the lateral cartridges, he (Mr. Wartnaby) must in common honesty confess ignorance with regard to it. He did not remember having been taught so, or if he was taught so he must admit having forgotten it. But he could readily understand that if such were the case the contraction of the heel to which Mr. Hunting referred would very naturally follow; and if the frog were cut away they would get this contraction of the heel. He thought what tended more to the contraction of the heel was not so much the cutting away of the frog and leaving the heels and the walls untouched, as it was a very common practice of the blacksmith to do so, and especially where horses are shod by contract they would have the shoe taken off and another put on in pretty much the same place; he thought contraction of the heel was more due to the walls and the heel not being properly pared. With regard to fracture from concussion, he would like to mention that in the course of his practice he had come across two horses with fractured pasterns, produced in one case by the horse which was frightened by a train passing over a railway bridge, making sudden efforts to get away. With regard to Mr. Hunting's reference to the pedal bone coming through the sole, he asked whether it was not more likely to be due to the inflammatory action set up in the sole. In cases where he had had lameness following on laminitis and the horses had recovered he had always cut down these and invariably found pus. He did not quite agree with Mr. Hunting about the pedal bone being pressed down and forced upon the sole. He thought inflammatory action would be set up as the result.

Mr. J. S. BARBER thoroughly appreciated Mr. Hunting's remarks, who bore him out about shoeing, in which he always took a great interest. There were three things he always went for, viz., lowering the heels, shortening the toes, but don't touch the frog. If there were a few rough rags about the frog pull them off, don't cut them off. As regarded laminitis there was no doubt they got sloughing of the laminæ.

Mr. T. HORTON thought the theory that explained why the suspensory ligament became strained more in racehorses than any other animals, was this —they would remember that it bifurcates at the lower extremity, and comes

round to the front part of the foot; and he thought when the leg was extended that would tend to tense the ligament much more than if it was adhering to the posterior part of the foot. Given that when it was tense was just when the horse's foot was extended, he thought the time when they got it injured was when the muscles became tired; for if a muscle became tired from exertion that muscle tended to stretch, and so the flexor tendons do not take the same share in supporting the limb, and so they had more weight thrown upon the suspensory ligament, and when the horse was dead beat the ligament could not stand it. That was his idea of the strain upon the suspensory ligament when in action. He had no doubt that the ligament was a very great help in keeping the bones in a right position when in action. With regard to laminitis it had just occurred to him whether, when they had a great deal of exudation in bad cases, it would not be a good thing to rasp the wall nearly away from the front of the hoof and allow some of the exudation to escape. Rasp down until you draw blood.

Mr. CARLESS said with regard to strain of the suspensory ligament he thought it was more mechanical than anything else. When the strain of that ligament took place it was a very unconscious movement. With regard to the movement of the sole he was quite in accord with Mr. Hunting inasmuch as he did not see why the old-fashioned method of seating the shoe inside was necessary to be adopted now if that was not. If the weight was not upon the foot it was not necessary that the shoe should be seated, and he considered that a horse should go comfortably and well with the shoe touching the wall. But it was not so and they always found that they went stilty in their action; and there would also be suppuration if there was considerable bearing on the sole. He had always been under the impression that the shoe comes in contact with the horn of the sole when the foot is on the ground. With regard to the rational method of shoeing with what was called the "rational" shoe he was greatly in favour of it, especially for all weak-healed horses which go tender and dotty in consequence. He thought the rational shoe was a cure for all conditions of feet and he had adopted it very often with great success. It was a certain remedy for corns if they were not suppurating.

Mr. BLAKEWAY said they had been speaking about corns, and pressure producing corns, but he thought that they should ask themselves what a corn is. He took it that it was only a bruise of the sensitive sole. They knew that continued pressure produced atrophy, and interrupted pressure produced hypertrophy. He did not think it was due to continued pressure on the sole. Then with respect to the easing of the heel when the shoe was on, he did not quite understand what Mr. Hunting meant. He considered it a bad practice in shoeing to lower the heels. His instructions were always to lower the toes aad get the heels as high as you can. He was certain that in town shoeing they would get corns if they got the heels too low. He was in favour of the rational shoeing if they could get the heels to stand it, but the difficulty was to get horses in the town to stand it. He always found that in putting on the Charlier shoe they got the heels too low. And when he could not get horses to travel in the Charlier shoe he got the patent india-rubber bar pads and the horses would go in them.

Mr. BARBER: In these cases I put them on thin heeled bar shoes.

Mr. BLAKEWAY said he did not attach much importance to a horse pointing his feet if he pointed the diagonal foot with it. He thought they must take it as an invariable rule, and he did not think they would be justified in condemning a horse for pointing his feet if he went perfectly sound. With reference to the case of fractured coffin bone, he understood Mr. Hunting to say that the horse had just come from the blacksmith. He (Mr. Blakeway) should think that in all probability it was caused whilst there. The very act of dropping the foot from the hand to the ground was sufficient to cause

fracture of the pastern bone. Some horses, as they knew, put great weight on the smith while being shod, and therefore when he loosed the foot it would go down with great concussion. With regard to the abnormally large frogs he did not like to see them, and thought they could have too much of a good thing. Horses with fleshy frogs were often associated with unsoundness.

Mr. BARBER said with reference to this fracture of the os pedis he had always had the idea that it was due to ostitis becoming chronic. As to fleshy frogs he would rather leave the frog and pare the foot.

Mr. ROGERS agreed with much that had been said. In reference to corns, in the majority of instances, it was due to bruises of the sensitive structure of the foot, and he knew nothing that would produce corn as surely as shoeing horses with short heeled shoes. Passing on to the expansion of the foot, he had no doubt that it did expand but to such a small extent that it was of very little practical importance. Some years ago when attention was called to this subject, he carefully examined the polished portion of the foot surface, and found that this polish was made up of a series of scratches which all ran in a tranverse direction across the wall from heel to heel. This condition of scratch or polish seemed only possible by lateral contraction of the heels. With regard to the descent of the sole, he did not think any great amount of descent took place. It might not be difficult for experimental purposes to measure it, but it was to such a small extent that he thought they should practically ignore it. If there was a small lateral expansion it must follow that there is a small descent of the sole. These were very interesting pathological experiments, but their practical utility it was rather difficult to see or apply.

Mr. STANLEY said his opinion had not been altered yet, that contraction and expansion takes place both at top and bottom of the foot in every action. He thought the last speaker's observation was very conclusive. With reference to the different ways of shoeing no one could lay down any law. If he has a good heel there is no doubt the proper way is to shoe a horse with the Charlier shoe, but so long as you have different classes of roads, granite, macadam, &c., you must shoe your horses to stand the wear and tear. With reference to shoeing a lame horse—at the present time there were lots of horses, working, which twenty years ago would have been cast off, because they did not have india-rubber pads then. But there was no law as to shoeing, you must shoe your horse according to the foot that presents itself. With reference to the concussion in a horse's foot, in the worst fracture he ever saw, the os coronæ was broken, and it was done by a girl riding a horse on a tan ring in a circus, it had been made to a considerable depth with various soft materials so that there would be no concussion from below. He once had another bad fracture caused when a horse was turning round.

Mr. PROCTOR was sorry he could not speak so practically as many present upon shoeing, but one system of shoeing, the Charlier, he could say something about. For a year and a half he drove his horses in the Charlier shoe, and always found, where the foot was sufficiently strong to carry this shoe, that horses went far better; and horses that were really unsound would go with the elasticity of young horses. He discontinued it because in country practice they used their horses up pretty frequently, and he found it a great trouble to get his horses foot prepared sufficiently in the time. He used it to two or three horses he drove during that length of time, and one in particular, which had been going thoroughly unsound, shortly after going with a Charlier shoe became sound. He thought if that shoe could be more generally adopted, it would be found the best shoe for all purposes. They went without turning up, and he had driven them on the most slippery roads, where a horse could scarcely stand with turned up shoes; and they could never slip when the frog was allowed to expand so as to fill up the intervening space between the shoe and the heel.

Mr. PEMBERTON could not say he liked the Charlier shoe. He found that horses so shod lost their action and went short. If you have a Charlier shoe the horn does not grow sufficiently to put a second one on, and therefore you get soreness of the feet. The master of hounds in his district always shoes his horses with Charlier tips and there was no case of lameness amongst his horses. One of his horses was sold and went into Shropshire for five or six years and he had bought it back for an old song. He (Mr. Pemberton) should say it had navicular disease, but he had taken to shoeing it with these Charlier tips and he had hunted it several times, and it went sound now.

Mr. PERRINS said his experience was that horses did lose their action with Charlier shoes and they became "pattering"; and the greatest objection was that although made from the best of iron they were continually breaking.

Mr. MALCOLM said they had shod their fire brigade horses in Birmingham for the last twelve years with tips, and had not had a single case of navicular disease amongst them and scarcely a sprained leg. The hoof comes to the ground and prevents slipping, which was a great advantage in the winter time. But in a considerable number of cases they found tips could not be adopted. A horse with weak heels would not do with it—it was simply a matter of growth of horn *versus* wear and tear. With fine soft roads there was no reason why horses should not be shod in that way, but where they had hard roads and granite blocks they found the horn wore away more rapidly than it was produced; where they had horses with only occasional exercise like fire brigade horses, the growth is equal to the wear, and in fact the hoof gets abnormally strong. He was glad Mr. Hunting had modified his opinion with reference to the expansion of the foot. He himself did not believe there was very much expansion but always thought there was a little—but questioned if that little was of much practical moment. With reference to the practical expansion of the foot they had only to remove the horny sole to see it effected. Let a horse stand upon such a foot for a short time and you will soon perceive that foot to be considerably larger than the other one. A large strong frog with ground pressure will also prevent contraction. With regard to the suggested function of the suspensory ligament in suddenly pulling up the hoof, he did not believe it was the agency of the suspensory ligament at all, but on the contrary, that it was entirely muscular. He knew two cases where they had a great amount of this clutching action. In both cases it was due to injury by the stifle. In these cases the extensor muscles seemed to act more powerfully than the flexors. As a consequence when the foot was raised from the ground in progression there was that sudden clutch upwards and backwards of it, so well described by the lecturer. He thought this abnormal action was just an increase of the normal action, and the same agents differing in degree were responsible for both.

Mr. HUNTING, replying on the discussion, said he took it that corn was simply a bruise of the sensitive structures by heel of the shoe, and he agreed with the speaker, who pointed out that the chief cause of this was shoeing with short shoes, and he might have added by shoeing too close to the edge of the wall. As to the action of the perforans on the pedal bone, he agreed with Mr. Perrins that when they had exudation between the sensitive and hory laminæ the tendency would be to rotate the bone within the hoot, and therefore to further depress the bone and cause injury of a kind. He did not say the sharp edge of the coffin bone would force itself mechanically through the wall, but it was assisted by inflammatory action of the sensitive sole. The hoof itself could not take on any inflammatory action, but it became softened by the exudation above it, and, therefore, was much more easily penetrated by the sharp edges of the bone. Mr. Wartnaby confessed to having forgotten his anatomy, but he (Mr. Hunting) could assure him that he was not

far wrong about the tranverse fibres which run through the plantar cushion, and he proceeded to describe them. Mr. Wartnaby had pointed out that leaving the heels too high was also a cause of contraction. He (Mr. Hunting) mentioned want of frog pressure as being the cause, but half the cases of atrophied frogs were due to the heels being left too high. He did not know why men should be afraid of reducing heels to proper proportions, for it was pretty certain that if they had high heels they had small wasted frogs. Some gentlemen felt inclined to grumble about large frogs, but they ought to be thankful for such developments. Then size depended entirely upon the want of development of the other structures of the feet. When they had a weak heel the frog doubles its size, and it helps to sustain the pressure that ought to come on the other structures surrounding it. In the last two cases of fractured pasterns he had seen, one was caused by a man galloping a horse for its wind in a small ring, and the other occurred in a horse that had not been out for a week and the driver amused himself by watching him jump and play about, and in that case it was a mis-step that did it. He let his weight down on the hard, unyielding column of bones, and not upon the muscles and tendons where it ought to have been. Mr. Stanley had referred to a case at a circus, and another where the horse turned suddenly round. Now the sort of action they would get on the bones in going round a corner, or making a sudden turn, would apparently have a tendency to fracture them if we believed that the anatomical arrangement of the articular surfaces—the ridge and furrow—acted upon each other like a wedge in a cleft. But this would only account for fracture from side to side, and we saw nearly as many bones fractured through from back to front, or even splintered in all directions. He did not see then how the screwing-round business could account for the fracture of those bones. Mr. Horton referred to the suspensory ligament becoming damaged in race-horses, and pointed out what he (Mr. Hunting) believed did occur, viz., that in the extreme extension of the foot in galloping you have a period at which the suspensory ligament is most stretched, then they had the tired muscles which failed to do their duty; and thus they had just the circumstances under which the suspensory ligament would be tried when it was extended to its fullest, and when it would most likely suffer strain or rupture. With regard to giving exit to the exudations in laminitis, the late Mr. John Lawson, of Manchester, used to advise cutting a hole in the wall to let it out. But this opening does something else, it lets in the dirt and may also admit organisms. As to descent of the sole, Mr. Carless said, that the seated shoe was rather an arrangement in favour of the sole descending; but a seated shoe hardly got bearing beyond the abutment of the sole, and that portion of the sole is quite capable of taking pressure. It would be found that for a space of an inch the border of wall and sole would take bearing perfectly well. He did not think it was the fact of having pressure on the sole that did harm, but it was the *uneven* pressure; and when they had a concave body like the sole, it was almost impossible for a man to fit a shoe exactly enough to avoid pressing unevenly. Mr. Stanley and Mr. Rogers told them that on the polished surface of the shoe they would find that the scratches ran transversely and not longitudinally, and they drew the inference that this could only result from lateral movements which would prove the expansion theory of the foot. He replied that a polished surface on a shoe was only seen when the shoe was loose, or when improperly fitted, and that such conditions did not permit inferences as to action under normal conditions.

Although he admitted that expansion took place of the posterior part of the foot at the coronet, he did not believe that on the ground surface there was any expansion whatever. With reference to "pointing," as long as they rested the diagonal foot he never looked upon it as a sign of unsoundness unless he found lameness. In fact, "pointing" was never more than a suspicious

symptom, unless lameness or structural change in the foot accompanied it. In conjunction with these it became very significant.

Mr. Hunting was awarded a hearty vote of thanks, as was also the Chairman.

Mr. MALCOLM announced that the next meeting would be held at Birmingham.

H. J. DAWES, *Hon. Sec.*

WESTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE half-yearly meeting of the above Association was held on 20th October, 1892, at Chubb's Hotel, Plymouth. The President, Mr. G. H. Elder, of Taunton, occupied the chair, and there were present Messrs. Jas. Collings, Exeter; P. G. Bond, F. P. Collings, Plymouth; G. H. Gibbings, Tavistock; P. T. Harvey, St. Columb; A. E. Michell, St. Austell; A. H. Oliver, Devonport; Thos. Olver, Truro; and the Hon. Secretary.

The SECRETARY read the circular letter which had been received from Sir Joseph Lister, advocating the claims of the British Institute of Preventive Medicine, and requesting the Association's help in behalf of the proposed institute.

The PRESIDENT felt sure that the members would be heartily in accord with the objects of the Institute, as they were such as could not do other than commend themselves to all scientists, of whatever grade. The benefits to be obtained would, without doubt, be at least equally shared by veterinary surgeons. He had the greatest pleasure in proposing that a vote of ten guineas be made to the fund.

The SECRETARY seconded the motion, and it was unanimously adopted.

The PRESIDENT said his first duty was to thank the Association for the honour it had done him by his election to the chair. He had at first hesitated about accepting the position, feeling that it was undeserved, but he trusted that an even increased interest in the Society and its doings would make his term of office a successful one. Like the kindred Associations this one was becomiug of increased importance, and—as evidenced by the vote just made—was ever ready to assist in really good work. Meetings of veterinary surgeons were always productive of good fellowship, and he was bound to admit generally helped to rub off the rust which at times will accumulate.

The profession was undoubtedly moving on; from a scientific point of view, its outlook was never brighter. The increased curriculum and standard of matriculation, and particularly the uniformity of the latter, were changes calculated to help the forward movement to an extent perhaps yet scarcely appreciated. Then, too, the granting of the new Charter had removed many grievances, and, all things considered, the profession was certainly bidding fair to become a happy family.

In his further remarks the President devoted himself to the subject of Preventive Medicine. He said that this subject was one becoming daily of greater importance, and in which, undoubtedly, in the future, our greatest sphere of usefulness would lie. Bacteriology was making gigantic strides; it had already done great things in some of our stock diseases, and as a result of its study, greater were still to follow. He took this opportunity of emphasising the utility of such an institution as that which had just been brought before their notice. It did seem an anomaly that British scientists—cramped hitherto by law—had either to go abroad, or to leave all investigation to be done by foreigners. He was, however, confident that the advancement of the veterinary profession was real, and that it was daily becoming more and more able and willing to help itself.

The address was received with applause.

Mr. F. T. HARVEY, after detailing a case of verminous aneurism in the anterior mesenteric artery of a two year old colt, then read a paper, of which the following is an abstract :—

"TRAUMATIC ARTHRITIS."

There seems three principal forms of injury by which joints are damaged, viz., sprains, contusions, and wounds, particularly those penetrating the joint cavity. A joint may be injured in all three ways at the same time, the resulting inflammation being most severe. A joint may also become diseased from the spreading of inflammation in the continuity of tissue from other parts—a diseased bone or lymphangitis. When a wound communicates with the joint cavity, the inflammation usually takes on a septic character as distinct from that of simple traumatic arthritis, which is usually characterised, when recent, by the large amount of serous exudation and little tendency to pus formation, the cartilage and bone generally escaping.

Contusion.

Kicks in equine surgery are by far the most frequent forms of contusions, and are often accompanied by wounds more or less severe. Knocks, falls, and blows are also frequent causes of inflammation of the capsule, especially when accompanied by a break of skin. Hæmorrhage and extravasation are the first events occurring in a bruised tissue. A joint may there be suddenly distended with blood *(hæmarthrosis)* an event, however, of no great surgical importance, provided no wound of the capsule is present, the effused blood slowly undergoing absorption. A severe bruise near a joint is the more liable to be followed by arthritis if the animal is in ill-health, or has been otherwise neglected. Thus we see stiff joints following slight cases of "broken knees," and quite recently a case of inflammation of the hind fetlock followed a small wound well above the joint, inflicted by the opposite shoe. On the third day after the injury there was some swelling and the wound was foul, but the lameness was very slight. The mare had recently been put on a "work diet." Cold water was applied to the leg for four hours continuously by the groom, with the result that the lameness became excessive, and when seen by me well marked arthritis was established. Had this small wound been kept aseptic probably no extension to the joint would have occurred. In all contused wounds some amount of adjacent tissue is damaged, which naturally forms a favourable field for the geneses of a spreading inflammation. Exposure to cold and wet or to east winds, especially in rheumatic constitutions, may also increase the liability to arthritis following a contusion. In like manner will local lymph stasis conduce to the same result, or the presence in the tissues generally of an abnormal amount of effete material.

As above stated the changes occurring in simple traumatic arthritis from whatever cause, affect in the earlier stages tissues other than bone and cartilage, very rarely in our patients proceeding to abscess formations. Nevertheless in some cases the tension within the joint may become so great that the capsule gives way, the contained fluid quickly burrowing into the surrounding areolar tissue. According to Erichsen, however, it is probable that in all these cases some destructive change in the synovial membrane preceded its rupture. When the capsule gives way and the fluid burrows, pointing commonly takes place at some distance from the joint—but not always, the result being dependent on the disposition of the parts. This rupture of the capsule is an event of great surgical importance, as the case will probably shortly become one of open joint. The symptoms following the rupture may be at first deceptive, owing to the great relief of tension which follows. With the relief of pain, however, there follows in a few days an increase of the swelling of a boggy character, which continues until pointing takes place. When this occurs the temperature falls, and continues lower until septic arthritis sets in,

as a result of the communication with the external air which is established by the pointing.

Case I. A ten year old in-foal mare, thoroughbred, was seen on September 9th, 1891. On the 7th her off hind leg was found enlarged. A similar swelling of the limb was seen a fortnight previously, passing off without treatment in a few days. The case seemed one of lymphangitis in a not very severe form. The attendant irrigated the leg almost continuously with cold water. The swelling and lameness increased, and by the 9th the leg was very tense, hot, and painful. There was evidently deep seated inflammation in the hock. Warm fomentations were ordered and febrifuges administered internally. The swelling continued to increase, and on the 12th an abscess was found pointing in front and to the outside of the true hock joint. The skin gave way on the 13th, and a large quantity of serum with large flakes of fibrin and oily looking material escaped, The pain and swelling became less, but the discharge was abundant for some days. Nothing like pus, however, came from the wound, and on the 17th almost pure synovia was being discharged. The discharge ceased on the 24th, and the last visit was made on October 4th. The hock was then slightly enlarged but there was no lameness.

Case II. This case contrasts very strongly with the previous one in its history, mode of treatment, and results. Bay harness gelding, three years old, getting at time of accident a full allowance of corn and little work.

April 20th, 1890. On the 16th he was found with both fore legs over his halter, the rope gripping tightly the left elbow joint. He was almost exhausted with struggling, and when liberated continued in great pain. He had been severely purged with linseed oil before I saw him, when he looked a complete wreck. Cold water had been supplied to the swollen left leg.

Symptoms: Pulse 80, temperature 104. Respiration 30, very lame on near fore leg and very painful over region of elbow, shoulder and chest. The joint (elbow) was moderately enlarged and very hot. No fluctuation of the capsule could be felt. The symptoms continued severe for four days, the pain then became less, and the breathing quiet, but the temperature remained about 103. This relief of pain probably corresponds with the easing of tension in the elbow joint from the rupture of the capsule, for shortly an œdematous condition appeared down the leg and along the breast, and went on increasing until pointing took place. The fluid was discharged about three inches below the level of the elbow joint, in front and to the outside. The discharge was similar to Case I. The lameness and swelling then almost disappeared, and the temperature fell to 101. A suspicious looking discharge continued, however, and on the fifth day after the pointing there could be no doubt that septic arthritis had set in. The joint again became hot, tender, and swollen, and the discharge purulent and profuse. The horse was subsequently destroyed.

This case offers some points for discussion. There seems some doubt as to whether the capsular ligament of the elbow joint can be felt fluctuating when distended with synovia; Professor Dick saying that it could be felt, and Professor Williams holding the contrary view, with which opinion I am disposed to agree. The capsule gave way apparently on the outside, at which point, according to Chaveau, the ligament is exceedingly thin. The only point at which fluctuation would be felt would be at the *cul-de-sac* in the olecranian fossa, but here the sac is rather deep, and buried by the small extensor of the fore-arm.

The indication of treatment, in all these cases of opening a joint from within, is to prevent the entrance of impure air from without, and thereby to prevent the onset of septic arthritis, for there is good reason to suppose that many cases of rupture of the capsule from high tension in simple arthritis

would make fair recoveries if that event could be warded off. How is it to be accomplished? The treatment in Case I. was on the principle of dry absorbent dressing. Much labour was required in carrying out the details for the first week, or until the discharge ceased. Boracic acid powder and cotton wool were the chief agents used. A large quantity of the acid was placed over the wound as soon as the first rush had lessened and plenty of wool over this and then a bandage. As soon as there was the least sign of the wool getting wet through, the dressing was removed and fresh dressing applied. The wound and skin was washed with perchloride of mercury solutions, 1—1000. No warm fomentations were used lest they might contaminate the wound. When granulation began and synovia alone came from the wound, iodoform and oil of cloves were used in addition to the acid powder. When the wound closed, warm fomentations were again employed. No single symptom to cause alarm occurred. In Case II. plugging, blisters, cold irrigation and the whole series of remedies usually recommended in open joints were tried without avail.

The treatment of arthritis from contusions will be discussed with that of open joint, but, as means of prevention, one would guard against passive œdema, and keep any wounds near joint aseptic.

Wounds of Joints.

A joint is known to be wounded when synovia escapes, or when the interior of the articulation is exposed. In all doubtful cases, the wound should be treated as one of open joint, the question being subsequently decided.

Pathology.

Probably, in no branch of surgery has the principles and practice of Listerism produced more important results therapeutically, or led to a more perfect understanding of the cause and nature of the changes occurring, than in that particular class of injury called open joint. A joint consists usually of an irregular cavity, capable of very considerable distension, and difficult to drain properly. The effect of a wound is to cause an effusion of blood, followed by an increase of synovia, and by much serous exudation. If to those we add impure air, we have all the conditions for fermentation, on which practically depends all the trouble we often encounter in open joint. For although synovia when in excess in a joint, is inside the body as regards temperature, it is yet outside of it in so far that it is beyond the reach of living tissue. According to Sanderson, air, water and septic organisms themselves, are all harmless when enclosed in a serous membrane if they are rapidly absorbed. In order that germs may have the opportunity of doing their fatal work, there must be in contact with the living tissue, non-living soil in which they can vegetate. Germs, then, being admitted to a cavity containing a putresible fluid, putrefaction frequently follows, and the synovial membrane and cartilages become bathed in septic fluid. Acute inflammation results, which extends to the ligaments and other structures of the articulation; and if the disease is not arrested, the whole joint becomes completely disorganised, and anchylosis results, or the animal dies from septicœmia or exhaustion. As with other serous surfaces, the synovial membrane absorbs very rapidly; as soon, therefore, as it is bathed with septic fluid, fever becomes a prominent feature, and there appears to be some connection between the size of the joint, and the resulting fever—witness the high mortality attending wounds of the stifle joint, though, in many of these cases, the pain is less acute than in the case of wounds of joints lower down the limb. With the development of granulation tissue within the joint, the fever becomes less severe, and the danger of death from septic causes is thereby lessened.

The course of the inflammation may be aggravated by want of rest, by the unhealthy condition of the patient, and by the bad hygienic surroundings in which he may be placed. Abscesses may form around the articulation, and not unfrequently closure of the original wound is followed by an opening at some other point. When a wounded joint escapes this destructive inflammation, it is generally owing to the wound being small, and union occurring by first intention, the after progress of the case being the same as in a subcutaneous injury; or the wound is large and situated at some point favourable for natural drainage. The medium size wound is said to be the most dangerous—too large to heal by first intention, and too small to drain the joint. Young animals usually suffer less from wound of joints than older ones, provided they are free from any taint of omphalo-pblebitis, or of tuberculosis. Gun-shot wounds are at all times the most dangerous.

Treatment of Arthritis.

This necessarily includes the prevention of inflammation. Unfortunately, in veterinary surgery we are called in but rarely before inflammation has begun, except in the case of the most severe injuries, or, in other cases, we may have great difficulty in deciding what the original injury really was, or what time has elapsed since its occurrence. Whether, however, as preventive or curative, there are certain general means which we should, if possible, always have recourse to, and the principal of which is *rest.*

Perfect rest, however, is, to a great extent, impracticable in veterinary surgery, and is a totally different affair from the kind of rest the human surgeon obtains. Slings should be adopted early, as it is probably of as much use in preventing as in curing inflammation. The antiseptic treatment of a joint without them is unsatisfactory. Slinging prevents displacement of dressings by limiting motions, and that at a time when the absence of passive œdema permits us to keep the animal quiet. The continuous use of slings when there is much œdema is questionable. Rest may be further obtained by the use of splints, but they are not of much avail, except in the case of the knee or fetlock joints. Another mode of procuring rest to an inflamed joint is in the use of blisters, but they are rarely used entirely for this purpose, and never in the earliest stage.

As a general means of preventing or moderating inflammation, purgatives are often of great use. They remove any effete material present in the blood and thus increase the natural antiseptic power of the normal tissues. They also enable us to keep the patient at rest longer than we otherwise might. Moderate purgation is probabiy of use about the time that an open joint closes, if the animal has not been much weakened. For the first few days after the closing is a critical time with the joint. as there is often much swelling and not rarely it reopens, thus frequently giving us further trouble and anxiety.

Febrifuges and sedatives are frequently also useful, notably aconite; salicylate of soda in half ounce doses I consider of value in counteracting fever of a septic type. It is needless to add that the diet must be light to begin with.

Local Measures.

Cold.—The choice of cold or hot water is frequently a matter of opinion, some surgeons preferring one, some the other. Personally, I usually find warm water a much more manageable remedy than cold. I am quite convinced that the use of cold water in the early stage of a spreading inflammation in the vicinity of a joint is likely to do mischief. Cold water in order to prevent the onset of arthritis must be used as early as possible after the injury and must be continuous. But how often do we see cases before inflammation has begun or the wound fouled, especially in the country? The late Mr. Hilton was very emphatic on the value of continous cold irrigation in not only

preventing but also in controlling inflammation after traumatic injury. He said: "The cold should be applied with a spirit of defiance to the inflammatory condition, and a fixed determination not to permit its occurrence." (Lectures on Rest and Pain.) The frequent but intermittent application of cold water and of cooling lotions he considered unphysiological and feeble as preventives of inflammation in a joint; with which opinion I am in agreement. In adopting continuous irrigation in a wounded joint a difficulty presents itself in regard to the wounds, as it is practically impossible to keep a wound aseptic with cold water running down the limb. The human surgeon gets over the difficulty by the use of dry cold, such as ice in india-rubber bags or by Leiter's tubes.

Heat.—As differing from the last should always be moist. After inflammation has set in warm water gives better results than cold as a rule. After dressing the wound with some dry absorbent dressing the joint, if a small one, may be wrapped in spongio-piline wrung out of hot water, and a dry bandage placed over all. In this way the granulations do not become reddened nor is the wound so liable to be fouled. When warm fomentations are used the length of time they are to be applied will depend on the tension of pain, and on the state of the wound if one is present.

Blisters.—There seems to be great unanimity as to the value of blisters in all forms of arthritis, and especially in open joint, but I have not been quite satisfied with the results I have had from blisters in open joint. The practice, however, is an old one, and has experience to recommend it. Blisters are certainly of value when the acute symptoms have been moderated by other soothing means. Among the remedies used to stop the flow of oil from a joint, oil of cloves is of great value. Its power does not seem to depend entirely on its antiseptic properties. It seems in some way or other to influence the nutrition of the parts and promote healing when other antiseptics do not. Drainage of joints has not been attempted as yet in veterinary surgery, but it is probable that in some cases it would be of value. The sealing up of a joint when its cavity contained much putrefactive material, and that under pressure, does not seem very rational.

In an animated discussion which followed, all the members present took part—the consensus of opinion favouring the treatment of open joint by cold effusion and oil of cloves. The usual vote of thanks terminated the meeting, after which the members dined together.

W. H. Bloye, *Hon. Sec.*

THE CENTRAL VETERINARY MEDICAL SOCIETY.

The monthly meeting of this society was held on Thursday night the 1st inst. at the Royal College of Veterinary Surgeons, 10, Red Lion Square, Holborn, Mr. W. Roots, the President, occupying the chair. The other Fellows present were:—Veterinary Captain Butler, Messrs. A. Broad, A. L. Butters, Veterinary Colonel F. Duck, Messrs. Edgar, A. E. Gostling, T. C. Garry, C. Humphreys, W. Hunting, R. C. Irving, F. C. Mahon, P. McOnie, Veterinary Captain Matthews, Messrs. A. Prudames, W. Roots, J. Rowe, H. C. Rogers, Veterinary Captain Raymond, Messrs. S. Slocock, F. Samson, S. Villar, F. W. Wragg. The visitors were Captain M. H. Hayes, and Mr. W. H. Williamson.

Proposed British Institute of Preventive Medicine.

The Secretary said he had received a letter from Sir Joseph Lister, relating to the projected British Institute for Preventive Medicine which was laid before the previous meeting, but as that was simply a dinner meeting, it was thought better to defer the consideration of the letter until the present gathering.

Accompanying the letter was a long type-written description of the aims and objects of the proposed Institute.

Mr. EDGAR: I should like to ask whether the effect of that communication is to give us information as to the existence of the Institute, and whether its object is to solicit combined help?

Captain F. RAYMOND: Do they ask for money?

The SECRETARY: The letter is an appeal for funds, but the Institute is not in existence yet.

Captain RAYMOND having found that the only gentleman in the veterinary profession on the Council of the proposed Institute was Dr. Fleming, expressed his opinion that, in comparison with the medical profession he did not think the veterinary profession was adequately represented on the Council. He did not, for one moment, mean to say that he did not consider Dr. Fleming was one of the best men they could have on the Council. On the contrary, he thought that Dr. Fleming was a very good man to have. At the same time he thought the veterinary profession should be represented by at least two other members, and those members should be gentlemen who have been connected with research. They would not have to reflect long before they could call to mind several gentlemen who would be well able to represent them in connection with this Institute. He suggested, for instance, Prof. Brown, Prof. McFadyean, Professors F. Vincent, Edgar, Sylvester, and Dr. Griffiths Evans. There were plenty of men in the veterinary profession engaged in original research who could perfectly well represent them on the Council of the proposed Institute. He suggested that the Secretary should write to Dr. Ruffer, the Secretary of the Institute, that if it was to receive the full support of the profession they should have, at least, two more veterinary surgeons on the Council. That was the first thing. Then there was another thing which had occurred to him. The enclosure with Sir Joseph Lister's letter set forth that the Institute was to "afford opportunities and accommodation to practitioners to investigate disease." He (Capt. Raymond) would like to know how this would work when the accommodation provided was pretty nearly all utilized. Then, supposing a number of veterinary surgeons on the one hand and doctors on the other, applied for the remaining accommodation, how and to whom would it be allotted? Would this be decided by ballot or would the selection be made by the Council, or would the space be given entirely to the medical practitioners? There was a third point as to which information was desirable. If they, as a profession, supported this Institute they would, of course, like to derive some benefit from the investigations that were conducted there: they would like to know what was discovered, and what was not discovered as well. They would really like to be able to follow the investigations. The ordinary course of the medical practitioner in these institutions was that he carried on an investigation, and when he had completed his work he published the record in any medical or scientific journal which he preferred. Well, they all knew that there were a number of scientific journals, and in the case of this Institute one gentleman might publish his paper in one journal and another in another, and hence information of a discovery of importance to the veterinary profession might not reach that profession. What was wanted was to know whether an account of the proceedings of Members of the Institute would be sent to the veterinary journals. The three points he had indicated should, he thought, be considered before they voted money towards the Institute.

Prof. EDGAR quite agreed with Captain Raymond that they were entitled to know in what way the veterinary profession would be benefited by the Institute. He (Prof. Edgar) thought that the transactions of the Institute would be printed in a periodical issued by it. Some years must elapse before they could derive any benefit from the Institute whose buildings are not yet erected. They required more definite and fuller information before voting money. He

did not quite understand whether they were asked to support, the Institute or give towards erecting the Institute building.

The CHAIRMAN: Both.

Mr. EDGAR: I think we should have at least two more veterinary surgeons on the Council. I quite agree with Captain Raymond in that.

Mr. W. HUNTING said he did not quite understand what it was that they required. It seemed to him that this was a scientific institute, and that the results of the work done there would go into a general fund, whence all scientific men could take what they needed. Valuable scientific work might sometimes be described in a comparatively unknown journal, but he did not think that it often occurred. It was not often that a bit of good scientific work remained buried in any one journal. It was generally quoted in all the scientific papers. He was perfectly certain that any work done at this Institute would be fairly open to be available for every scientific man. If they regarded this Institute from the point of view of the advancement of science, they ought to subscribe to it. It would do work which they could not do otherwise, and they, as a profession, would get a share of the advantage. There was another aspect of the question which was worth bearing in mind and that was that professions, like individuals, must be kept before the public in some way if they intended doing any good. If the veterinary profession could tack itself on to the leading men of the medical profession, it might get helped upwards. From a social and professional point of view it was possible that by attaching themselves to this Institute they might do themselves some good as they did by their association with the Hygienic Congress. A number of people discovered the veterinary profession for the first time after the Hygienic Congress; and since then scores of people had appreciated the veterinary profession more highly than they did before. Associations with this Institute would bring them into better society than that which they generally entered, and that would be an advantage to them. Professionally, socially, and scientifically, he could see no earthly reason why they should not join the Institute. On the contrary, he realised that there were advantages to be obtained in all three directions, and hence he held a strong opinion that they ought to subscribe.

The SECRETARY: I quite see, now that Mr. Hunting has put the matter so clearly, that there are many advantages we may obtain from subscribing to this Institute. If we were in a position to contribute a thousand guineas—I see there are five or six contributions of that amount, some of £2,000—we might then endeavour to force ourselves into the position that we consider we should occupy; but it is just possible our subscriptions may not be so large. I am not sure whether the Council of the Institute would not require some considerable monetary guarantee before conceding to us the representation we desire on the governing body. I think we had much better make some small subscriptions and then remain content to receive what benefits we can get from the Institute.

Mr. A. PRUDAMES said they lost sight of one thing in discussing this matter, and that was that money ought not to be the only consideration to rule in an affair of this description. Money no doubt might be an important factor in the matter, but when the veterinary profession had such talent at command as Captain Raymond had indicated, he thought it was only right that some of it should be utilised in connection with this Institute. It seemed to him that if they did not push their profession a little forward, no one would do it for them.

It was resolved: "That a courteous letter be sent to Dr. Ruffer, asking (1) if two more members of the veterinary profession can be added to the Council of the British Institute of Preventive Medicine, in view of the fact that the work of the Institute will be largely connected with the veterinary profession;

and (2) if facilities will be afforded for promulgating to our profession information of work done." I think this will not hurt the feelings of the Council of this Institute, and, at any rate, it may bring us forward in our proper position.

New Fellow.

Professor Longhurst, of Aldershot, was elected a Fellow of the Society.

Veterinary-Captains J. B. Savage and G. C. O. Fowler, of the Army Veterinary Department, were nominated.

Post-mortem Specimen.

Mr. EDGAR produced a *post-mortem* specimen which, he said, he thought would be of interest to the Fellows. On the preceding Saturday he was requested to see a little dog—a cross-bred Pomeranian—from twelve to fifteen years of age, which had been wasting some considerable time. It had been constantly coughing, exactly like a dog suffering from asthma, and within the last two or three days it vomited on two or three occasions. On examining the dog he was first struck with the pendulous condition of the abdomen, and he thought it was a case of abdominal dropsy. When he manipulated, however, he found that what appeared to be the liver was considerably enlarged, and he also felt a tumour. His opinion was that there was no asthma, but that the breathing was due to the presence of tumour. When the dog was killed and he made an autopsy, be found the tumour in connection with the liver which he placed on the table for inspection. He thought it was a cancerous tumour. It seemed a most interesting case, inasmuch as the dog, suffering as it did from such extensive disease in connection with the liver, yet preserved to the last a good appetite. There was only one small patch of emphysema in the lungs, about the size of a threepenny-piece. The cystic tumours were all in connection with the liver. When the dog walked along it suddenly fell down on its stomach, and then it had considerable difficulty in raising itself.

"EQUINE LOCOMOTION."

Captain HAYES exhibited a number of photographs and drawings which, he explained, would appear in a book shortly to be published, dealing with equine conformation—a study that had long engaged his attention.

In the course of his remarks he said that of course they knew that locomotion in the horse was effected by the action of levers. There were three forms of levers. In the first, they had the fulcrum between the power and the weight. They had a familiar instance of that when the horse kicked with the foot off the ground. In that case they had the power of the gastrocnemii muscles; the weight was the weight of the leg's velocity. It was accumulated if they took the centre of the weight somewhere in the metatarsal bone and the fulcrum naturally would be the tibia. If they had a horse drawing a load and making an effort with the hind leg, then they had a lever of the second order, the fulcrum being the ground on which the toe rested. The power was again the gastrocnemii muscles, and the muscles which extended the hock, and the weight was the tibia and its direction was that in which the weight was pushed. If, further, they wanted a lever of the third order they got it when a horse's flexors raised his foot to, say, scratch his abdomen. There the flexors of the hock were the power. The weight was again the weight of the leg below the hock, and the fulcrum again was the tibia. It was all the same whether a horse was walking, trotting, galloping, or cantering, whether he was ridden or whether he was in draught. In speaking to their clients and if they wished to express the subject in a popular manner, they said that the propulsion of the limbs was caused by the straightening out of the limbs. If a swimmer were in a swimming bath and had to swim to the end of it, he would

turn round and would project himself forward by doubling the leg up, pressing it against the wall of the bath and straightening out the limb. In the limb here (as was shown in the action of the hock joint of the horse) the levers had play and the leg was straightened out. In fact the leg was placed between two bodies, one immovable as the sides of the bath, and the other moveable, namely, the body which was projected forward. He would speak first of the propulsion of man. In the case of a biped they had a much simpler and easier action than in the case of a quadruped. When the man stood in a position which the lecturer assumed he straightened the limb and brought his body forward, and when the centre of gravity of his body—when the perpendicular line—fell in front of his foot which formed the anterior edge of the base of support, he must bring the other foot forward to restore the equilibrium. They had this in the equine also. In the case of the horse, which moved on four legs, the projection of the hind quarters was a very simple matter. The trochanter major was the fulcrum and the gluteal muscles the moving power. By the contraction of the glutes maximus they got the straightening of the hip joint. Then again by the contraction of the crural muscles they extended the stifle joint. The hock joint was also straightened, the fetlock joint by other groups of muscles. Hence they had in straightening the limb pushed the body forward. On the other hand, what the fore limbs did in projection—in locomotion—was done in a great measure through the humerus. Not alone had the fore-limb to do its part in propulsion, but it played a very important part in raising the fore-hand, in fast paces. This was seen in the figures of a horse in canter (which was displayed). Whether in a canter or gallop, whenever the body was raised from the ground, it was raised by the straightening of the fore-limb and particularly by the fetlock joint. Hence for galloping power they required horses with long pasterns. No short-pasterned horse had ever been gifted with great power of speed. They also wanted length of shoulder blade. The two joints that were particularly used in fast equine locomotion were the shoulder joint and the fetlock joint. He pointed out that in the trot they had a diagonal movement of the limbs, alternate diagonals, whereas in the amble there were the alternate lateral movements. There was a very subtle and important distinction which, he believed, had not yet been put forward, and that was to define the exact difference between the canter and the gallop of the horse. Let them suppose a horse was leaving the point where his body was resting on one hind leg, they would find that in the canter he first balanced himself on, say, the near hind leg, then came the diagonal or the near fore and off hind, and next came the off fore and then there was a moment of suspension. During the canter, the hind leg of the diagonal support never came down on the ground before the fore leg; whereas in the gallop, when the near hind came down, it was followed by the off hind, then by the near fore, and finally by the off fore. Hence the stride of the canter was much shorter than that of the gallop. As regards speed, instability of equilibrium played a very important part—the more unstable the equilibrium of a body the faster was the speed. They found the same thing in a man skating fast or running a sprint. Perhaps the best man who ever put on a running shoe or went on a cinder path was Harry Hutchins. If any one of them had ever seen him run he would have noticed the way in which he bent forward, making his equilibrium as unstable as possible. But a man who ran a long distance race, say of ten miles, ran more or less upright. So a horse cantering slowly would have his head upright, but in a fast gallop his head would be brought forward in order to increase the instability of equilibrium. According to the drawings, which he submitted for their inspection, they would find that the faster the pace, the more did the horse require to have the faculty of raising the forehand. In order to get the action level they they must have animals with light forehands, light necks, light shoulders,

everything light in front. On the other hand heavy horses, say common cart horses, had comparatively short limbs contrasted with the length of their bodies; and on account of the shortness of their limbs, and especially the shortness of their pasterns, they were unable to straighten their limbs sufficiently to raise the fore hand like the race horse would do. They found that Percivall, "Stonehenge," and other men who had investigated the question of the gallop, were very much confused indeed in pointing out the differences between the gallop and the leap. And yet the difference was very simple. In the gallop the suspension of the body occurred after the leading fore leg quitted the ground, while in the leap the period of suspension always followed the hind leg quitting the ground. (In confirmation of this Captain Hayes referred them to the photographs and drawings he produced.) He had often heard the following ventilated, that a horse in jumping had to land on his hind legs, but the Fellows of that Society, conversant as they were with anatomy, would not suppose anything so ridiculous. If they wanted speed in a horse, a condition precedent to this was the power of straightening the limb—the hind limb. When they talked about a horse having good shoulders—say for saddle work—and being light in front, they meant that they wanted him to be narrow between the cartilages. For speed it was also requisite that he should be narrow in the chest. The reason of that was that the distance at which the limbs were apart chiefly depended upon the size of the pectoral muscles. In the case of a strong and powerful cart horse they found he measured an immense amount across the chest or between the fore legs, but if he became sick and wasted the fore legs would almost touch each other and the chest would fall in. For speed they required lightness of forehand and power of loin muscles. It was sometimes said that loin muscles were propellers. They were nothing of the sort. In conclusion Captain Hayes said he should be glad to answer any question that might be put to him.

Mr. W. HUNTING said it did not seem to him that the lecture was one which admitted of much discussion. They had, he was sure, tried to follow the lecturer as best they could and they were obliged to him for the information he had afforded them. He (Mr. Hunting) knew no more difficult subject for an audience to understand or a lecturer to make clear to his hearers than that which Captain Hayes had dealt with. He (Mr. Hunting) simply rose to elicit a little information, because one remark of the lecturer's seemed to him opposed to all he had hitherto believed. Captain Hayes said that speed, so far as the hind leg was concerned, could only be attained by a condition of leg which allowed considerable opening of the angles. Now, if the power of straightening the hind leg was the great requisite for speed, the greater the angles the greater the power; in other words, the horse that had not a straight hind leg but the reverse ought to be the horse for galloping purposes. His (Mr. Hunting's) experience, however, was totally the contrary, and every galloping horse had a straight hind leg. The American trotting horse—probably the best for trotting—had a great angle of the hock. He was inclined to believe that nearly all English thoroughbreds had straight hind legs, and that the first requisite was strength of muscles high up, and that the essential movement of the hind leg took place from the hip and not from the hock. In other words, the trotting pace was essentially a pace which required great hock action, and that the gallop was a pace in which the hock played a comparatively small part compared with movement of hip. Horses with spavined hocks galloped well, and they did so because the hock was not much use in galloping, whereas the hip was. Another point, the lecturer suggested that when a horse was narrow in front of the saddle he was a well-made horse. Now he (Mr. Hunting) had always been taught the opposite, and that, at any rate in a young horse, they should have a good thickness through the shoulder, otherwise when he grew up he was apt to be thin in front, weak and wasty.

Hence he liked a horse under four years old always to be a little thick in front of the shoulder—not at the point of the shoulder but through the scapulæ. Mr. Hunting subsequently remarked that he had made a mistake in thinking that the lecturer considered that a straight hind leg was not favourable to speed.

Captain HAYES said that writers in their generalisations had been too prone to set up a standard horse, forgetting there were horses and horses. When they came to discuss the subject of conformation and equine locomotion they had to divide horses into horses of speed and horses of strength. That was the broad definition. Then they took the narrow classes and said that they were combined in various proportions of horses of speed and of speed and strength. Next they had regard to the teachings of physiology and comparative anatomy, from which they learned that the size of the muscles—the total character of the muscles—were entirely different when they were muscles of strength to what they were in speed. After adducing instances of this in bird life, and remarking that the eagle and the albatross had a very short sternum but a very big heel, Captain Hayes pointed out from photographs, the extraordinary disproportion between the legs of the cart horse and the race horse. The race horse required long thin muscles. They should be as long and as thin as possible consistently with bearing the amount of weight put on the animal. Physiology taught them that the thin muscle could be stimulated much faster than the thick muscle. A man who habitually lifted heavy weights and thus developed his muscles largely, lost alertness in boxing with gloves, for instance, because he was unable to stimulate his thick muscles quick enough. In continuing, the lecturer remarked that the reason why a cart horse had a short neck, and the reason why a race horse had a long neck was that the former had short legs and the latter long legs. What was the explanation of this? It was that the muscles of the neck were the muscles of locomotion; they were not mere functional muscles, moving the ribs and causing respiration, but were actually true muscles of locomotion. If a horse had thick muscles between the scapulæ and the body he would undoubtedly fail in speed. Hence if they wanted the highest development in speed they required the horse to be narrow between the shoulders and not broad; and it was requisite also that he should have the power of *straightening* his hock; they all knew that a horse could *flex* it—a horse could scratch his ears with his foot. The speed in propulsion depended upon the difference of length in the limb when it was bent and when it was straightened out. They never knew a great race horse but what he had powerful gaskins, by which he meant the measurement of the horse above the hock—in the tibial region. If a horse had a short os calcis he would have a poor gaskin. If they took the idea of the stroke of a horse in his hind leg they would find it very similar to a man putting a weight or throwing a cricket ball: the first part of the action was a bit slow, but the final jerk sent the thing far; and that he believed was in the action of the hock. If they examined how a limb worked they found that the gluteal muscles were the chief ones that started the weight; and the final kick off in the gallop or leap depended upon the straightening of the hock.

Mr. ROWE said he thought that the lecturer had made a slight error in naming his lecture, because conformation had entered so much into his description of locomotion as to make it an inseparable portion of it. He (Mr. Rowe) expressed a belief that the origin of the subject which Captain Hayes had brought before them was the criticism to which the position of a horse in a picture painted by Mrs. Butler (who was then Miss Thompson) was subjected. It was contended that the posture depicted was an unnatural one, but observation proved this not to be the case. Mr. Rowe added that he was not aware previously that the length of the pastern had so much to do with the pace of a horse.

Captain HAYES, in reply, adduced his experience of a vast number of horses which he had observed, and had photographed in proof of his theories.

Captain RAYMOND, in moving a vote of thanks to Captain Hayes for his interesting lecture, said as to the result of the lecture upon the education of veterinary surgeons of the future he was hardly able to form an opinion, but this he could say, if the student of the future was to go very deeply into the subject it would be necessary that he should have another session for his studies.

Mr. SAMSON seconded the motion, which was carried unanimously.

Captain HAYES said he should like to see the subject with which he had dealt forming part of the veterinary curriculum. He regretted to say that although the question of the soundness and age of a horse was in the province of veterinary surgeons, and was, of course, intimately connected with the subject of equine locomotion, the fact of a man holding his diploma either as a Fellow or a Member of the Royal College of Veterinary Surgeons was no guarantee that he possessed any special knowledge of conformation.

The proceedings then terminated.

YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

THE concluding quarterly meeting of the year was held at the Queen's Hotel, Leeds, on October 28th, 1892, the president, Mr. George E. Bowman in the chair.

There were also present Messrs. J. S. Carter, Bradford; A. W. Mason, F. H. Somers, A. McCarmick, F. Hallilay, and J. Clarkson, Leeds; H. Snarry, and S. T. Pickering, York; P. Deighton, Riccall, A. W. Briggs and J. Appleyard, Halifax; W. Lodge, Dewsbury; Theo. C. Toope, Knaresbro'; F. W. S. Clough, Morley; J. Cooke, Scarbro'; J. Atcherley and F. Thompson, Harrogate; J. W. Anderton, Skipton; J. E. Scriven, Tadcaster; and W. F. Greenhalgh, Leeds.

New Officers.

The HON. SEC. (Mr. W. F. Greenhalgh) remarked that the first officer they had to elect for the ensuing year was a president.

The PRESIDENT proposed "That Mr. Snarry be the president of this Association for the ensuing year." Mr. BRIGGS seconded this, and it was carried unanimously.

Mr. SNARRY thanked the members for the honour they had done him, and assured them he would use every endeavour to promote the welfare of the Association and render their quarterly gatherings, if possible, more interesting and instructive than they had been in the past.

Mr. BRIGGS moved "That in future there be an understanding that any members of this Association be eligible for the position of President." Mr. MASON seconded this, and it was carried unanimously.

Mr. MASON said the next officers they had to elect were the Hon. Secretary and Hon. Treasurer, and on his motion, seconded by Mr. LODGE, Mr. Greenhalgh and Mr. Scriven were re-elected to the positions.

The financial statement was then read out by the HON. TREASURER, and adopted on the motion of Mr. MASON, seconded by Mr SOMERS.

Mr. J. CARTER moved "That the best thanks of this Association be given to our officers for the manner in which they have discharged their duties." He was convinced they had discharged those duties in a very efficient way, and he was very glad they had decided to retain office.

The motion was carried, and Mr. GREENHALGH briefly replied for himself and Mr Scrven.

For the office of vice-president Mr. LODGE proposed Mr. Mason, seconded by Mr. ANDERSON, and carried.

Mr. BRIGGS proposed Mr. J. Clarkson, seconded by Mr. PICKERING and carried.

These gentlemen together with Mr. Bowman, the ex-president will constitute the vice-presidents for the ensuing year.

Specimens.

Mr. Somers exhibited some pathological specimens consisting of:—

Bones of pig from shoulder joint, scapula and humerus badly affected with rheumatoid arthritis, which was so acute as to ultimately result in anchylosis. The animal could not rise from the ground and died from the results of the disease.

Two feet of a calf with only one digit, in appearance like the feet of a foal; this was one of a consignment from Holland.

The second molar tooth of a horse in the upper jaw, elongated to such an extent as to wear the opposing tooth on the lower jaw completely away, and also part of the jaw. The animal, an old one, had not shown any impediment from this immense tooth. It was discovered after the death of the animal. An early operation by the tooth shears would have removed this.

A hearty vote of thanks was accorded to Mr. Somers for bringing the cases before the meeting.

The PRESIDENT proceeded to describe a case which he thought might be of interest to the members. It had been attended by Mr. Greenhalgh and himself. The animal was a brown hunting mare bought at York, and apparently worth from 60 to 70 guineas, and about 15 hands high. It appeared a boy had her out at exercise when suddenly she became as if paralyzed, or the same as a horse commencing with azoturia. When got into the stable she fell down, but afterwards got up, when she was placed in slings. Whilst in this position she became very excited, especially if she noticed the presence of a stranger. Her pulse was about 100, and her temperature about 5½. Whilst in the slings she would use her limbs as if galloping at a great rate. She was kept in the slings for about ten days or a fortnight, and gradually came round, she was at present doing her work all right. A curious part about the case was that the mare always started off with the near fore leg, and then all the other limbs began to work.

Mr. LODGE: Did she sweat much?

The PRESIDENT: Tremendously, you could hear her heart beat terribly.

Mr. GREENHALGH: She won a point-to-point race last winter in Ireland.

Mr. COOKE said he had seen a similar case in Ireland. The animal was paralyzed for some days, but would paddle with the fore feet, as if it was trotting, for hours together.

Mr. PICKERING had seen cases where animals laid previous to death had begun scraping with their fore legs, especially if they had had a dose of opium.

Mr. LODGE thought it might be due to the blocking of some small vessel.

Mr. BRIGGS was pleased the subject had been introduced because he had had a case which had caused him some uneasiness. The history of the case he thought was most unfortunate. He sold a mare to a brewer, and on a certain Friday, Saturday and Sunday she was kept in the stable, being fed on the usual food. On the Monday morning she was taken out, and was very excitable. After going a distance she became paralyzed, and was got into a gentleman's stable and died there. Being a veterinary surgeon it might have been said that he knew something about this mare. He was glad that similar cases had been that day quoted. He thought the mare would recover but she died very quietly except for the galloping symptoms which had been described

in other cases. In all the cases he had seen there had been the galloping symptoms, the urine being as thick as jelly.

Mr. McCARMICK: Was there any spasm of the diaphragm?

Mr. GREENHALGH: Yes, very bad indeed.

The PRESIDENT: She hiccoughed frightfully.

Mr. GREENHALGH: The mare would stand as quiet as possible so long as a stranger was not there, but as soon as one appeared she became excited.

Mr. LODGE: It is excitement of the brain undoubtedly.

The PRESIDENT: With regard to Mr. Briggs' case, I have found in this part of the country if a veterinary surgeon ever has anything to do with the sale of a horse it must never go wrong again in any respect.

The Scarboro' Rabies Cases.

Mr. PICKERING referring to the recent alleged outbreak of rabies at Scarboro' said on the morning of the 25th September last, he was at Scarboro', and whilst having a walk on the South Cliff noticed near the Grand Hotel, close to one of the seats placed for the convenience of visitors, a black and tan collie dog. The animal's manner was so strange that it attracted his attention. It had quite a vacant look, his eyes were dull and the mouth dry. Presently another dog came by, and the suspected one, though he did not bite the other, refused to hold the usual doggy intercourse, and slunk away to hide under another seat. This performance was repeated several times, and then he (Mr. Pickering) heard the animal howl in that peculiarly distressing way associated with animals suffering from rabies. That convinced him it was a very suspicious case of rabies, and keeping the animal in sight, he saw a policeman, who it appeared was on the look out for the dog, owing to its apparent condition having been reported. The policeman was armed with a no more favourable weapon than a piece of rope with which to secure the. suspect, who, on his approach, ran away snapping at several other dogs Afterwards the policeman collared the animal, which flew at him, but fortunately did not get hold. A gun was subsequently procured and the animal shot. He afterwards called on Mr. Scott, the veterinary surgeon for the local authority, and on Mr. Cooke. Mr. Scott made a *post mortem* examination on the body of the animal on the Saturday afternoon, in the presence of Mr. Cooke and himself. The result of that was that Mr. Scott considered it a case of meningitis and not one of rabies. He and Mr. Cooke came to the conclusion that it was a case of rabies, the *post mortem* appearances being the following: fauces and larynx slightly congested, membranes of stomach congested, and a little coffee-coloured fluid escaped when the stomach was opened. Just within the pyloric orifice was a small piece of straw and hair, &c., rolled up and elongated. The whole of the small intestines were discoloured, with symptoms of enteritis. The carcase was at a later period sent to the College in London, asking for their opinion on it, but it had by that time got so cut about that nothing could be done with it. A meeting of the Scarboro' Town Council was called, and the report of their suspicions on the case given. That report said the case was not one of rabies, and it was adopted by the Council.

About a month previous to this happening, he (Mr. Pickering) was called to see a dog about two miles out of York, which for a few days before had been very peculiar in its manner. The result of his examination of the animal was that he ordered it to be destroyed. When he came to enquire into the history of the case, he learned that the dog had been in Scarboro', and had been bitten by a dog near the Grand Hotel. Mr. Cooke told him that he had had several suspicious cases. With regard to the animal on which he saw the *post mortem* made, he (Mr. Pickering) certainly thought it was a case of rabies. He firmly maintained if anyone of their profession had seen the conduct of

this dog during life, apart from the *post mortem* symptoms, they would have condemned it.

Mr. LODGE said he would like to mention a case to the meeting, which, he thought, would illustrate very forcibly the difficulties attending these cases. A year or two ago there was a report that a mad dog was abroad at Dewsbury. The animal was ultimately caught and killed, but during the course of its wild flight it unfortunately bit an old man of 62 or 63 years on the finger. He made a *post mortem* examination of the carcase, and was glad to say, owing to what transpired after, he insisted on the presence of the Medical Officer of Health of the Borough. Everything about the dog appeared to be perfectly healthy, with the exception that there was a little froth and mucus on the top of the trachea, consequently they certified that the dog was not suffering from rabies. Unfortunately, however, the poor old man who had been bitten, died, and he met his death undoubtedly from hydrophobia. He mentioned the case to show how easily they could be mistaken. He could assure the meeting that he was considerably relieved at the fact of the Medical Officer having agreed with him in the opinion he gave as to the condition of the dog.

Mr. PICKERING said, in diagnosing a case of rabies, he relied far more upon the appearances of the living animal than upon the *post mortem* indications. He had several cases, and maintained that a man who had seen a living animal suffering from pronounced rabies was not likely ever to forget it, or ever mistake the symptoms. He had heard that awful, piteous, almost indiscribable howl given by dogs suffering from rabies, several times, and he never heard it so pronounced as it was in the Scarboro' case. All the other dogs avoided it as if by instinct. He certainly thought in cases where symptoms were so pronounced as this they should take every precaution. He remembered having a case in York, in which a dog was bitten, and it went mad 12 months after.

Mr. COOKE, who on rising was received with applause, said the dog seen by Mr. Pickering was brought to his place the day before Mr. Pickering noticed it. By a description of the symptoms he got from his assistant, together with the history of the case, so far as he could learn it, and having had three cases of rabies previously, he thought it would be advisable to have the dog destroyed. Unfortunately, however, it was not destroyed until the following day. He related the first case which occurred in Scarboro' was about four months ago. It was seen by a quack dog doctor, who said it was suffering from glanders—surely a most remarkable complaint for a dog to have. By the description of the dog's symptoms, which had been supplied to him, he (Mr. Cooke) had no doubt the dog was mad, as was clearly shown by the *post mortem* examination. Since then he had had three cases of rabies. In all he had eleven cases, seven of them being dumb rabies. It was true that the authorities afterwards issued the muzzling order, but it was practically useless. It was absurd to see dogs going about wearing strapped muzzles, and at the same time carrying sticks and parcels in their mouths. The cage muzzle was the only one which was of any use.

Mr. PICKERING considered the outbreak at Scarboro' a most serious one; and he had had numerous letters from veterinary surgeons on the matter. There was really no telling how many dogs had been bitten, though at least 20 were reported. At Mr. Scott's and Mr. Cooke's veterinary establishment he saw quite a number of people with dogs that had been bitten; it was really a serious thing, especially when the period of incubation was so uncertain. He thought, if possible, the visitors who had had dogs in Scarboro' ought to be warned.

The PRESIDENT: I see the Board of Agriculture have passed a new order lately.

Mr. ANDERTON: It refers to compensation with regard to rabies in all animals except dogs.

Mr. LODGE: I don't think it excepts dogs.

Mr. ANDERTON thought perhaps they were in too great a hurry to destroy dogs suspected of suffering from rabies. He could understand having a dog shot at once if he was at large, but if he was in custody keep him in custody, secure him.—(A voice: "Who is going to secure him?")—If they let the disease run its course they could easily be perfectly convinced. He remembered the case of Mr. Slingsby, of Carlton, who had a St. Bernard valued at 40 guineas. He went to see the dog and found it chained up in a stable. It was very uneasy, constantly licking its fore feet, and picking up mouthfuls of straw and carrying it away. It then transpired that there had been a mad dog in the neighbourhood a few weeks previously. After observing the animal for some time he was convinced it was suffering from rabies, and asked that the windows of the stable in which it was securely chained should be blocked up. This was done, and on the following day it was found that the dog was dead, having broken the massive chain, and he (Mr. Anderton) had no doubt, if the windows had not been blocked up, it would have got loose, for it was well-known that glass would not stop a mad dog. The *post-mortem* examination showed clearly that the animal had suffered from rabies.

Mr. LODGE: What appearances do you mostly rely upon?

Mr. ANDERTON: Congestion of the stomach and larynx we place most dependence upon, and the presence of foreign matter such as wood, coals, feathers, and horse hair. There might be rabies without any of this, however. There was generally to be detected a coffee-coloured fluid and congestion, and the bladder was generally found to be empty in cases of rabies. He firmly advocated the stoutly securing of the suspected animal, for if it suffered from rabies it would assuredly die, and the appearances would be so pronounced as to leave no room for doubt.

Mr. SOMERS said in conjunction with a Bradford doctor he had made numerous *post-mortem* examinations in these cases, and the most important thing they noticed was congestion of the fauces with a difficulty in swallowing.

The PRESIDENT remarked that he was sure everyone present would be glad to see their esteemed friend Mr. Cooke present amongst them again, after the misfortune which had happened to him.

Mr. COOKE thanked the meeting for the kind expression of sympathy, and he was glad to be able to assure them that he was improving, and that his had not been quite such a serious case as the newspapers had made out. His accident happened in connection with the *post-mortem* examination his assistant made on the body of a dog suspected to be suffering from rabies. He had finished the examination with the exception of taking off the skull cap, when finding a difficulty in the operation, he (Mr. Cooke) went to his assistance with a piece of iron, and got the cap off all right, but immediately felt a pricking sensation in the thumb. He was not aware that he had made an abrasion, and thought no more about it for the time being, wiping the thumb on a piece of cloth, and noticing that it did not bleed. The next day he felt a pain about his back, chest and limbs. It went off, however, and did not recur until the Wednesday. Thinking perhaps he had got blood poisoning, he saw a doctor in Scarbro', and it was decided to take off the soft part of the thumb. This was done, the spray being used. The operation caused him no pain, but he supposed he fainted, for when he came round, he was laid on the floor with a pillow under his head. Since then, he (Mr. Cooke), believed he had progressed all right. He had stated the case to Professor Axe, and that gentleman had informed him that he had never heard of a case of anyone suffering from hydrophobia as the result of being inoculated from the carcase of a dog that had been dead so long as eighteen hours. That was the length of time the dog in question had been dead.

Mr. ANDERTON said they should never be in a hurry to make a *post-mortem*. He had decided never to make a *post-mortem* until a period of 24 hours had elapsed after death.

Mr. PICKERING: I never attempt to make a *post-mortem* until 24 hours after death.

Mr. MASON: I have been asked to make examinations on dogs only just dead. People have come in their carriages with boxes, packed, and wanted to know at once, for, if the dog had rabies, they were off to Paris at once.

Mr. COOKE remarked that in connection with this outbreak, he had seen a letter from an individual who attributed it to the public provision for supplying drinking troughs for dogs. The writer maintained that the saliva from rabid dogs found its way into the drinking troughs, from thence into the stomachs of sound dogs, and caused them to be affected. He would like to ask the opinion of the meeting on this point.

Mr. GREENHALGH: Have you managed to trace the outbreak at all?

Mr. COOKE: The only one I can tell you of is this the dog doctor had been treating for glanders. My assistant was bitten by a dog that was suspicious, and the post-mortem appearances were similar. I sent the carcase to Professor McFadyean, and he said he was not able to give a conclusive opinion, but he thought it was a suspicious case.

The PRESIDENT: I should think there would be no danger if a healthy dog did swallow the saliva from a mad dog.

Mr. J. CLARKSON: With regard to swallowing the saliva, I should think there would not be much danger, unless there was some wound or abrasion in the mouth. I don't think it would be able to live long in the stomach. I would like to suggest that in cases of making a *post-mortem* examination the application of carbolic acid is better than nitrate of silver.

British Institute of Preventive Medicine.

The PRESIDENT: Gentlemen, the next business I have to bring before you is the British Institute of Preventive Medicine. I am sure you will all agree with me that an institution of this description is very greatly needed; it will tend to the promotion of veterinary medicine, and benefit the veterinary profession.

I believe there is no institution in the United Kingdom specially devoted to preventive medicine, and we have suffered often very seriously for this omission. Nearly all recent discoveries and investigations in pathology have been made in similar institutions on the Continent; and when a veterinary surgeon in this country is desirous of employing different vaccins to inoculate animals in order to protect them from such diseases as anthrax, black quarter and swine plague, or in order to ascertain whether they are affected with such disorders as glanders and tuberculosis, he must apply to one of the Continental establishments for the supply of the material. Such a state of affairs is very discreditable to the United Kingdom, which should really be in advance of every other country in this respect, and I feel confident that this society will do all in its power to support this Institution. I am afraid we are not very rich just at present, but I hope we may be able to help a little. I notice in the preliminary list of donations the Duke of Westminster, the Duke of Devonshire, and several more are contributing £1,000 each.

During the last thirty years great advances have been made in the prevention and cure of infective diseases. So long as their causes were unkown, the methods used to combat them were necessarily unsatisfactory, but know that science has shown that such affections are due to the action of living micro-organisms, new and more promising ways have been opened up for their prevention and cure. One of the most striking illustrations of this has been

the abolition of suppuration and other grave surgical complications by the application of bacteriological knowledge of the treatment of wounds.

It has lately been proved that the lower animals may be protected against certain infectious diseases by a process of preventive inoculation, for instance in anthrax and black quarter, inoculations of the weakened and diluted series have proved exceedingly successful in staying the spread of disease. In case of rabies, it has been shown by Pasteur that such treatment may prove efficacious, even after the patient has been bitten by a rabid animal.

I also have, before I sit down, to make a few remarks on glanders and its suppression; I am afraid they will be very brief, owing to want of time. I am sure you will be pleased that the Board of Agriculture has issued a new order. I don't think it will interfere with us practitioners in Yorkshire, for I believe we are nearly free from both glanders and farcy at present, and have also been for some time. I have been the veterinary inspector for this borough for the last four or five years, and I am pleased to say I have not seen a case in that time, or had one reported to me.

Mr. MASON: I think this is a most interesting subject, and the members will be pleased that it has been brought before their notice. Probably, however, it would be well to consider it at our next meeting, and I beg to move a resolution to that effect. Mr. MCCARMICK seconded, and it was carried.

On the motion of Mr. GREENHALGH, seconded by Mr. COOKE, it was decided that the Yorkshire Veterinary Medical Association contribute five guineas towards the funds of the Institute.

W. F. GREENHALGH, *Hon. Sec.*

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

A MEETING of the Society was held at the London Hotel, 4, Andrew Square, Edinburgh, on Wednesday afternoon, 23rd November, 1892. The President, Mr. James Clark, F,R.C.V.S., occupied the chair, and the following gentlemen were present: Principal Williams. Professor Hunter, Professor de Jong, Mr. Peter Moir (hon. secretary), Messrs. Rutherford, Edinburgh; Burnett, Maybole; Cameron, Berwick-on-Tweed; Boyd, Melrose; Storie, East Linton; Hutton, Keiso; Frank B. Pearson, Henry G. Bowes, O. C. Bradley, J. Hall, W. A. Allott, and Young, *North British Agriculturist.*

The HON. SECRETARY read the minutes of the last meeting, and these were approved of.

The CHAIRMAN said: The Secretary has received a letter from Mr. Hutchinson regretting his inability to be present, and one from Mr. Mills, Principal of the Bombay Veterinary College, asking for a copy of the rules and regulations of our Society.

New Members.

Mr. Peter Young, veterinary surgeon, St. Andrews, and Mr. John Young, veterinary surgeon, Dundee, nominated and proposed by Mr. P. MOIR, and seconded by Principal WILLIAMS, were duly elected.

The CHAIRMAN: The next business is the election of office bearers for the ensuing year. Personally I have to thank you very much for having supported me during the last two years, and having had a fair share of the honour, I now very willingly resign the office in favour of some other gentleman. I am sure there are plenty of members of the Society very willing and very able to step into the office, and I will be very glad to hear any gentleman propose some member.

Principal WILLIAMS: I think it is usual for the President to nominate a successor, unless you are willing to go in again.

The CHAIRMAN: Well, gentlemen, if there is no other, I have very great pleasure in proposing that Professor Owen Williams be my successor in office. He has taken a very great deal of interest in this Association, and I do not think we can do better than have a gentleman who is well-known in the profession, and one who takes a very enthusiastic interest in all the doings of our Association. I therefore have great pleasure in proposing that he be appointed President of this Association for the ensuing year. Mr. Boyd seconded.

It was mentioned that Professor Owen Williams was unwell, otherwise he would have been present that afternoon.

Mr. MOIR: I put this matter to Professor Owen Williams, and after a certain amount of natural diffidence and hesitation in accepting so onerous and honourable a post he consented, if he were nominated, to make an effort to carry out the duties of President.

The CHAIRMAN: Then this is carried unanimously.

On the motion of Principal WILLIAMS, Mr. Clark (the retiring president), Mr. Boyd, and Mr. Spreull, Dundee, were appointed vice-presidents.

The CHAIRMAN: The next important office-bearer, in fact the only other office-bearer, is our worthy secretary. He has been very energetic in all his duties, and I am sure if he only consents to again take the reins of office they are quite safe in his hands. I have great pleasure in proposing that Mr. Moir be appointed secretary.

Mr. MOIR: Mr. President and Gentlemen, I think that the offices of the Society should go round. There is no doubt that there are other members of the Society who would be very agreeable to take the office.

Principal WILLIAMS seconded the motion.

Mr. MOIR: If nobody is particularly anxious for the office I will have great pleasure in carrying on the work for another year.

Specimens.—Broncho-Pneumonia.

Principal WILLIAMS: I may state that I have here microscopic sections and naked-eye specimens of broncho-pneumonia and pleuro-pneumonia. I brought up this matter last year, and I thought it would have been thrashed out. I should be very sorry indeed to have brought this matter forward if I had thought for a moment that an investigation would have been allowed into the nature of the reported pleuro-pneumonia that was found in Fife. All I have to say is that the Government, so far, and their officials have smothered all investigation. (Hear, hear.) Even to-day in *The Scotsman* we find that the answer of the Board of Agriculture to the Perthshire County Local Authority is that they could not possibly send them a piece of the lung of the Canadian bullock killed at Ardgaith, because it presented nothing extraordinary, and unless a lung presented "some very unusual morbid appearances" the veterinary officers were not in the habit of preserving these lungs. Now, I ask you in all fairness, does this show whether the veterinary officers of the Privy Council wish to smother this matter or wish an investigation? I say that every lung of an animal which has come from America now must present some extraordinary condition, some extraordinary lesion, and therefore these lungs ought to have been preserved, in order that the scientific world might satisfy themselves whether this disease was pleuro-pneumonia or not. But instead of that the lungs have been done away with, and (pointing to a jar on the table) so far as I know this is the only piece remaining of the Canadian lung in dispute, this portion of the beast killed at Lindores in Fife, the origin of all this row. It is here to-day before you for your opinion, and I want the candid opinion, both of my profession and of the scientific world, whether this is pleuro-pneumonia or not. If I am wrong I will eat humble pie and beg a humble pardon at once, but if right I think I should be treated with rather more courtesy than I have been. I think I was entitled to have a look at more

pieces of lung than I had. I maintain the same position as before, and I am again supported by M. Nocard. I have here before you—and you can judge without opening the jar—pieces of six lungs referred to in that Dundee paper to-day, where it is said that ten lungs were found in Deptford having pleuro-pneumonia. I have pieces of six of these lungs in this jar, and if you look at them, with one very doubtful exception which is at the bottom and which can be fished up and examined, I think anyone will tell you that is not pleuro-pneumonia. The very fact that the sections are floating on the top of the water and not underneath is quite sufficient for me. With reference to these lungs, I have a letter this morning from Dr. Wray, American Inspector at Deptford, sending me six sections of lung which had been condemned by the Government Inspectors as having pleuro-pneumonia. These came by the screw steamer Borderer, which landed on November 2nd, 679 head of cattle. They were sent to Dr. Wray by Dr. Ryder, who is also an American Inspector of the port. These lungs had been examined by M. Nocard, who stated very positively that they were cases of catarrhal pneumonia, and not of pleuro-pneumonia. Therefore, it appears to me that the lung of every animal landed in this country which is found on being slaughtered to have signs of any disease of the lung, is marked down as having pleuro-pneumonia contagiosa, and that further investigation is suppressed by the destruction of those lungs, giving no one a chance of examining them. I am forced to this conclusion, and I trust that the expression of this opinion will force the hands of the veterinary authorities of the Privy Council, and will compel them to come forward and appoint some independent authority to examine this section which has caused all the mischief, and those other sections which are before you, and give an independent opinion. Mr. Leng in his letter says: "I have committed myself 13 years ago, and I maintain that commitment is perfectly right and will be justified by events. I am forced to this conclusion that either the professional advisers of the Board of Agriculture, the veterinary officers, are guilty of having committed a gross professional error, or else they are aiding and abetting a political fraud, and I think I shall be in a position to prove that." The whole thing was exhausted before. When a section is cut from the seat of disease it sinks at once down into water. In broncho-pneumonia it may not sink at once. It certainly may in this case sink after it has become saturated with water, but pleuro-pneumonia sinks at once, whereas in those cases which are stated to be pleuro-pneumonia by the authorities they are on the top. Although they have been in this fluid for more than a week, here they are still on the top, and one of them is one of the most beautiful cases that you ever saw in your lives. I now pull out this great piece of lung which is in dispute. This is the Lindores lung which has become very valuable, and more so every day because it is becoming smaller. I have sent sections to Canada. I have not consulted Mons. Nocard because I have consulted him already, but there is the piece to examine for yourselves. I have also here a specimen sent from Nebraska, Western America, by Dr. Billings who is the chief of the Government Pathological Laboratory in Nebraska. It is a typical case of the so-called corn-stalk disease. Now, any man might be suspicious of this. It is so exceedingly consolidated, so solid indeed that at the first glance you might think it was pleuro-pneumonia. But if you look you will see that the blood vessels are perfectly empty. There is no clotting of the blood-vessels, and in making a microscopic section I find that it is identical with what we found at Deptford, and with what was found in 1879 at Liverpool. I have an 1879 lung in my possession, at least a portion of one, and microscopically they are all identical. Some cases are much more chronic than others, and you can understand that animals coming from America might have passed through this disease long ago, exposed to the inclemency of the weather in America. They perhaps have to travel 300

miles from the Western States to the port of embarkation. You never hear of this disease during the summer. They are exposed to the cold night and day, and then they are over-crowded in a ship, and perhaps have a very rough passage. Indeed, it is a great wonder that there are not more affected. I wish to point out a most remarkable fact about this outbreak. These animals landed in this country on the 6th October, and they were found affected on the 21st October. About 1,200 head of cattle were landed in this country, but I think there were two ships. Well, we will say that the ship "Hurona" contained half of them, and I think the disease was found in both ships. If they had pleuro-pneumonia they must have had it before they left Canada. They could not get it on board ship; we all know that. They must have had it in Canada. There were 600 cattle in each ship, and they were closely confined together. The last were killed a few days ago—six weeks after landing and after being in contact at least eight weeks, perhaps longer. I ask you as veterinary surgeons, Is it compatible with the history of pleuro-pneumonia that so few cases should be found among these 1,200 head of cattle? If it had been contagious pleuro-pneumonia when these cattle were in Canada, and seeing they were herded together, at least 25 per cent. of them would have been affected with pleuro-pneumonia. Is that not the history of the disease? Instead of that we have only had four or five cases, which I maintain may certainly not be as well developed broncho-pneumonia as the specimen I have before you, but these are nothing but broncho-pneumonia. It is against the history of the disease altogether; it is against common sense, and it is against experience. Gentlemen, I have nothing more to say. The specimens are all there—specimens of 1879, sections of Billings' lungs, and sections of this Lindores lung. I have no purpose to serve, except to elucidate the truth, The specimen is here to be submitted to anybody whom you like, and I would only say that our great Agricultural Society should appoint a commission to investigate into the matter. I have still a piece of lung preserved for that purpose. Thousands of sections can be made out of it, and shown to the whole scientific world. I think I have given you sufficient food for reflection, and if you wish to open this parcel out, you can examine those lungs for yourselves. Now, Jonathan wants to claim this as an American disease, commonly called the corn-stalk disease. It is called corn-stalk disease because it is said to follow upon the cattle eating corn-stalks in a decomposed condition. First of all they have a sort of inflammation in the bowels, purging, and so on, and they die in from eight hours to as many days, but we find the same condition in this country. I have lungs from Ireland, presenting exactly the same character as this disease. We have also lungs from Lancashire with exactly the same character. M. Nocard says it is found in France. Billings disputes that, and he wants to claim it entirely as an American disease. Many of you have found cases of bronchitis or septic pneumonia. An animal dies from bronchitis or inflammation of the lungs. The same condition exactly is found in these cases as is found in the corn-stalk-disease. It is possible that it might be a case of blood-poisoning arising from eating corn-stalks, but to my mind I see nothing incompatible with the history of an ordinary cold—travelling, battened down on board ship, and subjected to rough usage at sea. There is nothing incompatible with this disease arising from ordinary causes. I do not attach much importance to the bacterium, but the same bacterium is found in the Lindores lung that was found in Deptford and in America. The same symptoms were noticed—the twitching of the tail, followed by bellowing, and running after dogs and chickens, in fact anything coming in their way, straining so violently that many of them erect their sternum, become paralysed, and so stand until a short time before death. The wildest ones die in the shortest time. They are sick from eight hours to seven days. The majority of them become wild

or delirious and die within 24 hours after the first symptoms being noticed, Those are the symptoms—differing entirely from pleuro-pneumonia as we have been in the habit of seeing it in this country. Therefore I say that the whole history of the disease is incompatible with that of pleuro-pneumonia contagiosa, and I think a commission, investigating into this valuable specimen which is left to us, will convince anybody that the Government have made a gigantic mistake. I say it with all due respect, wishing to cast no slur, that a great error has been committed, and further than that, that those who have committed the error have no wish to see it rectified.

Mr. R. RUTHERFORD, Edinburgh, said:—It is quite possible that what falls from each individual speaker this day may, in process of time, become historical on this subject; and to my mind each of us should be very careful in what he has to say. We are face to face with a question which has agitated not only this country but the whole Continent of America—all those, indeed, who are interested in the exportation of cattle to this country—a question which affects us equally, not only on this side of the water, but on the other side. We are met with two diametrically opposite ideas. and more than ideas; published opinions by men who are experts in this profession of ours. Those of us who are only amongst the common run of the profession have to be all the more careful in what we are about and of what we say. Now, for my part I was prepared to state some opinion, but since I came into this room my friend Mr. Young, of *The North British Agriculturist*, has handed me a copy of to-day's *Dundee Advertiser* which will make me at any rate more careful. In that paper is a letter from Mr. Long, the member for Dundee, to Mr. Gardner, the Minister of Agriculture for the Government, in which he, speaking for the agricultural interest of Forfarshire, says that they are quite dissatisfied with the state of affairs as they at present stand. That is to say, with the opinions of the Board of Agriculture and the opinions on the converse by Prof. Williams; that, as it stands, the thing is only settled in favour of the Government and not to the satisfaction of the country. He says, "They think that your Board, in permitting further importations, are themselves in doubt on the point. What they therefore suggest and desire is that the matter should be fully thrashed out as between your veterinary advisers in London and the Scotch Professors and Vets. They don't wish you to call in men like Professor Williams, who, however able, have committed themselves to a decided view, opposed to that of your advisers. But there are others in Scotland, like Professors McCall and Walley and Mr. Rutherford, whose opinions carry great weight. If you brought these men into consultation, and got from them a clear opinion one way or the other, it would be at once accepted. As it is, the complaint is made that your Board will give no satisfaction, either by submitting the lungs to independent examiners or testing its view by resorting to inoculation." Now, for my own part, I say at once, and say plainly, that I do not, not being a trained microscopist, profess to be able to give an opinion absolutely reliable, upon preserved specimens. I say that at once, but I do say that, as an ordinary practitioner and one who has had a large experience in this disease, I think I would be able to recognise the disease in the lung as it is taken from the dead animal. That, in fact, is the opinion which was held and enunciated to me by a prominent member of the veterinary staff in London. They also thought that if anyone could not recognise this disease in the lungs taken from a dead animal, his opinion, as a practical man, was not much worth having. I do not go that length, but I go the length of saying that I think, in a vast majority of instances, we ought to be able to say whether or not an animal was suffering from contagious pleuro-pneumonia. Somebody has been good enough to suggest that there are other ways of determining this disease to the satisfaction of the veterinary profession and of the whole world, and that one of these ways is by inoculation.

To my mind it is the one satsfactory test for determining the existence of this disease or not, and I do not agree with Mr. Gardner or with his advisers when in reply to Mr. Leng he says :—"I have not overlooked that an endeavour should be made to obtain confirmatory evidence, or the reverse, by means of inoculation." I am glad to see that even at this time of day this great question is being taken up. Mr. Gardner proceeds :—"But as to this I would say that I am assured that not only has the disease itself never been communicated in such a manner, but that no symptoms have been produced in a living animal which afford any evidence, which can be depended upon, as to whether the animal from which the material inoculated were taken, was, or was not, suffering from pleuro-pneumonia." I give that a flat denial. The gentleman who enunciated that opinion knows nothing whatever about the phenomena of inoculation, and, knowing nothing of it, he should not have allowed that to appear in print. It is wrong, absolutely wrong, or else the whole of us who have practised inoculatiou, and the gentlemen who form the staff for conducting the inoculation experiments, and the work of inoculation in Queensland, must be wrong also, and the opinions published by the Queensland Government must be absolutely wrong. Not only so, but they have been given to the world as ascertained facts and truth. Mr. Gardner says no phenomena are produced that can be relied upon. I say, on the contrary, that if you take pure virus from an animal suffering from pleuro-pneumonia, and introduce it into the lungs of a healthy one, you will produce pneumonia which no other disease can produce but pleuro-pneumonia contagiosa. I have no doubt that my friend, Professor Hunter, will tell you it would produce phenomena which would be identical with those of the pleuro-pneumonia lung. Further, the results of that inoculation passed into other animals reproduce themselves. It is a series of phenomena, each of which is a part of the first. There is another practical point I wish to refer to. Suppose the Government do not take up this suggestion of inoculation to determine whether the disease was really pleuro or not. They might reply to us and say, "We are not prepared to admit that the results you produce by the inoculation are indicative of the disease at all." They can do it in another way. They can take some of those animals that are the subject of pleuro-pneumonia, and they can put them on some small island in the Hebrides, and they can make them live with healthy stock, and if they have contagious pleuro they will produce it in their neighbours. There are two ways, then, which the Government advisers have in their power to determine whether or not this is contagious pleuro-pneumonia, and those are by inoculation and by the propagation of the disease by contact. Both methods are quite within their province, if they are anxious to settle the question for ever. More than that, it is quite within the province and within the rights of the Canadian Government to ask that experiments of that nature should be carried out. I have no more to say except this, in reply to this letter, that I hold that inoculation, in opposition to what they say, can determine whether this disease is true pleuro or not, and I also hold that they can determine it by the practical method of placing a diseased animal in contact with healthy ones, in a position where the country may not be in danger.

Principal WILLIAMS pointed out that both the Americans and the French had tried experiments in inoculation, and quoted from Billings, who stated that many animals died after inoculation.

(To be continued.)

BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

THE last general meeting of this Society was held at the Crown Hotel, Penrith, on the 13th of October. The President, Mr. Pender, of Lockerbie, occupied the chair. There were also present: Messrs. Rutherford, Edinburgh; Donald, Wigton; Howe, Keswick; Carlisle, McKie, Bell, Young, Carlisle; Thompson, Aspatria; Pears and Armstrong (the secretary) Penrith.

The meeting is usually held at Carlisle on the second Friday in October, but owing to the lamented death of Mr. Joseph Robson, M.R.C.V.S., of Penrith, one of the oldest and most respected members of the Society, it was decided to hold it in Penrith. The above members first of all attended Mr. Robson's funeral and acted as pall bearers.

The meeting being resumed, the minutes of the previous meeting were read and confirmed.

Officials for the ensuing year were then elected. Mr. Rutherford was unanimously elected President; Messrs. Pender and Pears, Vice-Presidents; Mr. Thompson re-elected Treasurer; Mr. Armstrong re-elected Secretary.

Mr. RUTHERFORD then gave a very interesting address on "Bowel Disease in the Horse," which elicited a long and instructive discussion, which could not be completed, and on the motion of Mr. Bell the discussion was adjourned till next meeting.

Votes of thanks to Mr. Rutherford and the President brought the meeting to a close.

JOHN ARMSTRONG, *Hon. Sec.*

PATHOLOGICAL SOCIETY OF LONDON.

AT the meeting of this Society on November 1st, Dr. J. J. Clarke exhibited an example of Epithelioma on the feet of a hen, as being remarkably like the general psorospermosis of skin described by Darier in the human subject. There was hyperkeratosis of the follicles of the feathers. Owing to the imperfect preservation of the material the histology could not be satisfactorily traced. In glycerine the horny substance showed bright round bodies, and similar bodies were present in the mucous layer of the epidermis. In the case described by Darier there was a coarse epitheliomatous mass about the pubes. He suggested that infection of a second fowl might be accomplished in similar circumstances by keeping the fowls tied together by the legs.

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY.

THE 15th general and 2nd annual meeting of the above Society was held at the Blackfriars Hotel, Manchester, on December 7th, 1892, Peter Taylor, Esq., the President, in the chair.

Present: Messrs. T. Briggs. T. Hopkin, W. A. Taylor, W. Woods, E. Faulkner, T. Leather, J. B. Wolstenholme, T. Greaves, A. Leather, and the Secretary.

Letters were read from H. J. Dawes, Secretary of the Midland Counties V.M.A., intimating that Mr. A. Carless, of Stafford, had been nominated by their Society as a Life Governor of the National Veterinary Benevolent and Mutual Defence Society in the place of the late F. Blakeway.

The nomination was accepted.

The PRESIDENT then addressed the meeting. He said he was pleased to meet the members at the general meeting once more, and congratulated them upon having had few cases during the last year. He drew attention to the case of Hall *v.* Leather, and advised members in all cases in which it was at all likely that an action at law would be taken against them, to be fully prepared, to call in at once some brother practitioner to see the case, and have the animal in question valued by a competent person. He also wished to call the attention of members, and more particularly of members of the profession who had not joined our Society, that we had three free studentships—one each—generously placed at our disposal by the Royal College, London, Prof. Williams, Edinburgh, and Prof. McCall, Glagow, each of which was at present vacant. The last nominee received his tuition with Prof. Williams. We have to regret the loss of two or three members, through death, amongst which was one of our Life Governors, Mr. Blakeway.

The SECRETARY then read his report in which he said the Society had progressed fairly well during the last year, having enrolled 14 new members, showing that the reduction of the entrance free was a popular movement at the same time he did not think members of the profession, and especially the younger ones, supported the Society as they ought. He would have thought every new member of the profession commencing business on his own account would join at once, as it would relieve him of a great amount of anxiety and expense if ever threatened with an action at law. We have had only one case brought before the Council during the last year, which was defended, the verdict being for the defendant with costs. We had several applications for assistance from non-members, but our rules precluded us from helping them.

No application had been made from our benevolent fund during the year.

The trust deed had been duly executed, and the societies' securities deposited at the bank, in the name of the trustees.

Mr. GREAVES, in presenting his report, said it afforded him much pleasure to be able to show a continued increase, not only in the amount of funds, but also in membership. In 1865 when we launched it we had only nine members with £9 9s. in funds; in 1866 we had 90 members and £159 in funds. Since that date I have had the honour of being your treasurer; Mr. Peter Taylor, president; and Mr. Geo. Morgan, secretary.

Our funds are now £3,035 in the Benevolent Branch, viz. £1,900 invested in the Mersey Docks; £900 in the Manchester Corporation, and £235 in bank. bringing in about £125 annually.

The Defence Fund amounts to £242.

We have 122 members. During the last 25 years we have lost 70 to 80 members from death and other causes, during which time our funds have been materially increased by donations, etc., for instance:—

The Lancashire Veterinary Medical Society, ..	£50	0	0
The Liverpool " " "	25	0	0
The Yorkshire " " "	30	0	0
The Midland " " "	30	0	0
The Edinburgh " " "	10	0	0
Mr. Childe, of London, ...	21	0	0
Mr. F. F. Collins	15	0	0
Mr. Field's bequest	52	3	4
Miss Dicks' "	92	18	2
The Scottish Metropolitan Vet. Med. Society ..	20	0	0
And in 1869, ten members of our Society subscribed £10 each	100	0	0

Although in 1866 the entrance fee was reduced from £5 to 21s. and the annual subs. from 21s. to 10s. 6d., still by diligence and economy we have been able to build up and firmly establish this society. Our arrears are less now than ever they have been. It is quite true of late we have had few calls upon our funds. I find that during the above period we have voted about £200 to orphans and widows of members, and expended over £350 in law suits and settlements of 13 cases.

The council have been called together to examine and carefully adjudicate upon some 70 other cases, from which a large and interesting experience has been gained, and seeing the tendency and frequency of law suits, in which the veterinary surgeon is held actionable in giving an honest opinion as to soundness of horses, or advice in his daily avocation, it will be evident to every member of our profession how desirable it is to join our Society, and for that purpose we earnestly invite them to do so. In conclusion I beg to record the fact that, during the 26 years this Society has been in existence, the number of cases the officers have had to deal with, the hundreds, nay thousands of miles they have travelled on the Society's account, has all been done at their own expense, with one exception, and that was in 1869, when one of the officers charged £2 9s. 7d. for expenses in attending a trial at Enniscorthy, in Ireland, in defence and support of a professional brother.

The following officers were re-elected :—Peter Taylor, Esq., *President;* Geo. Morgan, Esq., *Vice-President*; Thos. Greaves, Esq., *Treasurer*; S. Locke, Esq., *Secretary.*

Members of Council.

Thos. Briggs, Esq., J. S. Carter, Esq., E. Faulkner, Esq., T. Hopkins, Esq., J. Lawson, Esq., R. S. Reynolds, Esq., W. A. Taylor, Esq., H. Thompson' Esq., R. C. Trigger, Esq., W. Whittle, Esq., W. Williams, Esq., F. W. Wragg' Esq.

Auditors.

J. B. Wolstenholme, Esq., and J. W. Ingram, Esq.

The meeting terminated with a cordial vote of thanks to the officers for their services during the past year, and to the chairman for presiding.

SAML. LOCKE, *Hon. Sec.*

ROYAL AGRICULTURAL SOCIETY.

AT the Monthly Council held on December 7th, Sir JOHN THOROLD said he had received the following report from Mr. Cope for Professor Brown :—

PLEURO-PNEUMONIA.—Only one case of this disease has been discovered since the beginning of November on premises in Great Britain, apart from the foreign animals' wharves. This case was in one of the Canadian cattle landed at Dundee at the beginning of October, and the disease was only discovered on slaughter early in November, and this discovery led to the slaughter of over 100 other healthy cattle in contact.

SWINE FEVER.—In the nine weeks ended November 26th, there were reported 446 fresh outbreaks of this disease in Great Britain, 2,002 pigs were attacked by the disease, 916 diseased swine were killed, 815 died, 142 recovered, and 195 of the diseased were still alive when the last published return was made up.

ANTHRAX.—During the months of October and November there were fifty-five outbreaks of anthrax in Great Britain ; 117 animals were attacked, fourteen diseased animals were killed, eighty-eight died, fourteen recovered, and two remained alive at the date of last return.

GLANDERS (including farcy).—In Great Britain, according to the returns published for the nine weeks ended November 26th, there were 273 outbreaks of these diseases in Great Britain, and 552 horses were attacked ; 203 of the outbreaks and 420 of the horses atracked were in London.

RABIES.—There have, within the past few weeks, been ten cases of this disease in England; these occurred in the counties of Hants, Lancaster, London, and York (N.R.)

The Committee reported officially the result of the deputation to the President of the Board of Agriculture on the 4th ult., in reference to the importation of cattle affected with pleuro-pneumonia from Canada, and a copy of the "Animals Amendment Order of 1892, No 9," providing that from the 21st ult. cattle brought from Her Majesty's possessions in North America should be subject to slaughter at the port of landing, was laid upon the table. Of the £600 granted to the Committee for the year 1892, they had expended £558 8s. 6d., and they asked for a renewal of the grant of £600 for the year 1893, £500 of this sum to be allocated to the Royal Veterinary College for the study of comparative pathology and bacteriology. They had met eight times and made eight reports.

Mr. STRATTON desired to move a resolution similar to that passed by the Smithfield Club and other societies to the effect that all foreign animals should be slaughtered at the port of debarkation. There was a general feeling that the country, being so deeply interested in the suppression of pleuro-pneumonia and foot-and-mouth disease, ought to pass a measure that foreign animals should be all slaughtered at the port of debarkation, or be subjected to quarantine for ninety days. He did not know whether the Veterinary Committee had discussed this matter.

Sir JOHN THOROLD stated that the question had not yet been under the consideration of the Veterinary Committee, and that, therefore, at the present moment, it was a question for the Council to consider.

Mr. MARTIN seconded Mr. Stratton's motion.

The PRESIDENT said that he did not know whether Mr. Stratton wished on that occasion to raise a discussion on the subject, which was a large one. It was proved the other day that whilst inspectors could detect any outward symptoms of disease, they were utterly unable to do so when the symptoms were latent. Everybody would agree that it would be most desirable that foreign animals should all be slaughtered at the port of debarkation.

The Duke of RICHMOND and GORDON said that this was possibly one of the most important subjects that could be brought before them. He scarcely thought that a motion of that kind should be made without due notice being given, so that the Council might be prepared to discuss it. He did not agree at all that this motion should be passed unanimously without discussion. He thought a good deal might be said both for it and against it. He deprecated very much that the Council without discussion should come to a resolution that all animals should be slaughtered at the port of landing. It might be that it would be a benefit, but he rather suspected that if the Council were to pass the resolution, it would not go very much further than that room ; because if it were put before the Government, he did not imagine that they would be prepared to bring in a bill for the slaughter of all animals at the port of landing, or if they did that they would be able to carry it. He would not argue the matter further on the present occasion, but he suggested that so large a question ought not to be discussed without due notice.

Mr. STRATTON then said that he would give notice of the following motion for consideration at the next meeting of Council :—

That in the interests of the producers and consumers of meat in the United Kingdom, it is essential, as a safeguard against the introduction of foreign contagious diseases with animals, that all cattle, sheep, and swine imported into the United Kingdom from foreign countries be slaughtered at the port of debarkation.

Notes and News.

TRICHINOSIS IN A WILD BOAR.—On November 14th last, trichina were discovered in the flesh of a wild boar at Berlin. This is the third case observed since January 1st, 1892, when the police regulations regarding the microscopical examination of the flesh of this animal came into operation.

PREVENTION OF TUBERCULOSIS AMONG CATTLE.—A Bill for the prevention of tuberculosis among cattle has passed its first reading in the Danish Folkething, and has been referred to a committee. The Bill provides for the allocation of a sum of 50,000 kroner yearly to defray the expenses of experiments with tuberculin,

MEAT PRESERVATION.—*Das Rothe Kreuz*, August, 1892, publishes the following method of preserving meat. Raw, fresh meat is dipped into melted, inodorous and tasteless paraffin. The coating it thus receives, hardens at once, and can be reinforced by repeated dippings. When the meat is desired for food, it is placed into hot water. The coating of paraffin is at once dissolved, and, as it floats upon the water, it can be gathered and used again.

MALLEIN IN GERMANY.—It is stated that the Prussian authorities are so satisfied of the value of mallein subcutaneous injections as a means of diagnosing glanders, that the Ministry of War have directed the Veterinary Department, Berlin, to supply mallein to its officers, along with instructions as to its use. In accordance with this order, the Veterinary Department "has the pleasure of informing generals in command that the military veterinary school possesses a full supply of mallein." The material is delivered cost free; only in the event of its being sent to armies abroad is a small charge made for packing. A detailed report must be written of all experiments made on army horses with mallein, and the results obtained therefrom.

INTELLIGENCE IN HORSES.—A remarkable degree of intelligence and kindness to a stable companion is shown by a horse in Boston, says *Colman's Rural World*. One of the mounted police officers leaves his horse in the stable connected with the station on Blue Hill Avenue, near Dudley Street, while he answers to the roll-call at noon, and again at six o'clock. The officer fastens his horse to the post forming one corner at the head of another horse's stall, and as the animal is tied the other picks up a mouthful of hay, forces it through the iron grating about his stall, and waits until his guest has eaten it. Then he repeats the operation, and continues his hospitality until the officer returns for his horse. He began to do this without any suggestion from the men, and he does it twice a day, much to the satisfaction of his visitor.

Correspondence.

A CORRECTION.

DEAR SIR,—In the VETERINARY JOURNAL for November is an article on a new method of applying dressings to horses' feet, published in my name, and regarding which I would ask you to make the following correction. The article

was sent in the joint names of Veterinary-Lieutenant Blenkinsop, A.V.D., Veterinary Surgeon to the Punjab Government, and myself. The original idea is entirely that officer's, and was adopted from a plan he saw in Spain, where it was practised by the muleteers on their mules. Beyond working out this plan, and making the drawings, I had nothing to do with it. I would ask you to publish this correction, as it is not fair that I should get the entire credit for an improvement that originated with another.

JOSHUA A. NUNN, Veterinary-Captain A.V.D. Principal,
Lahore Veterinary College.

November 23rd, 1892.

[We much regret Veterinary-Lieutenant Blenkinsop's name was accidentally omitted from the paper alluded to, and gladly give insertion to our valued correspondent's correction.—ED. V. J.]

INTELLIGENCE IN THE DOG.

DEAR SIR,—A Scotch collie lately had a litter of thirteen pups, by a dog six miles from her home.

When œstrum again made its appearance, she immediately made her way, of *her own free will*, to the same animal.

Surely this indicates pretty deep thought, intelligence, and a particular affection for that individual male. Only to those continually associated with the lower animals is the existence of thought very apparent.

"MIND IN THE LOWER ANIMALS."

Reigate, Surrey, *December 10th*, 1892.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from E. Wallis Hoare, Cork; Veterinary-Captain Nunn, Lahore; L. Pearson, Pennsylvania; Dr. Crookshanks, London; H. P. Armsby, Pennsylvania; Pathological Society of London; Pennsylvania State College; H. J. Dawes, West Bromwich; H. Dalziel, Woking; R. Dawson, Reigate; W. F. Greenhalgh, Leeds; J. S. Hurndall, London; S. Locke, Manchester; R. A. N. Powys, London; A. W. Hill, London; W. H. Bloye, Plymouth; H. G. Rogers, London; Arnold and Sons, London; J. Armstrong, Penrith; J. J. Meyrick, C.B., Winchester; J. Priest, Manchester; "M.R.C."; P. Moir, Edinburgh.

BOOKS AND PAMPHLETS: Transactions of the Pathological Society of London; Bulletin of the Johns Hopkins Hospital; Live Stock Journal Almanack; *J. Roalfe Cox*, Horses in Accident and Disease; *Dr. J. G. McKendrick*, Life in Motion; *Dr. R. Ostertag*, Handbuch der Fleischbeschau.

JOURNALS, ETC.: *Condensed Extracts; Recueil de Med. Veterinaire; Repertorium der Tierheilkunde; Live Stock Journal; Journal de Méd. Vétérinaire; Journal of the Society of Arts; Lancet; Echo Vétérinaire; Annales de Méd. Vétérinaire; American Veterinary Review; Presse Vétérinaire; Bacteriological World; Clinica Veterinaria; Revue Vétérinaire; Archiv für Wissenschaftliche und Praktische Thierheilkunde; Journal of Comparative Medicine and Veterinary Archives; British Medical Journal; Mark Lane Express; Edinburgh Medical Journal; United Service Magazine; Thierarzt; Journal of the Royal Geographical Society; Baily's Magazine; Berliner Thierärztliche Wochenschrift; Revue de Cavalerie; Cape of Good Hope Agricultural Journal.*

NEWSPAPERS: *American Field; Sheffield Daily Telegraph; Madras Times; Bombay Gazette; Hindu; Scotsman; Glasgow Herald; Edinburgh Leader; Birmingham Post; Bristol Mercury; Montreal Gazette.*